MINING & PETROLEUM STANDARD

AND

American Gas-Light Journal.

Publishing Office, Tribune Buildings, No. 1 Spruce street, corner of Nassau.

VOL. VI.—No. 23—WHOLE No. 131. NEW YORK, FRIDAY, JUNE 2, 1865. $3 PER ANNUM—IN ADVANCE

PETROLEUM.

WEST VIRGINIA PETRO EUM REGIONS.

A journey of a week through the oil and coal districts of West Virginia, and what was there seen, may be of interest to the public, particularly to those who have made investments in that section, and have relied upon the representations of interested parties for their information.

Parkersburg holds the same position in this section that Oil City does in Pennsylvania, it being the headquarters for those operating in Kanawha Valley. It is easy of access, being the western terminus of the Baltimore and Ohio Railroad, while all the Ohio steamers make landings at this point. The hotel accommodations for a large transient custom are not of the most extensive character, and at times one is very fortunate in being able to secure a bed. The great rush of eastern parties to purchase oil territory has rapidly diminished since the fall of gold. Now a stranger is importuned at every turn, not only by eastern speculators who have received large tracts of land by the payment of a small bonus, but by the original owners, who are eager to dispose of their small farms at a much less price than was demanded one month ago.

In regard to the oil producing districts, Burning Springs, on the Little Kanawha, about 35 miles from Parkersburg, at present ranks as the first. Here there is an old well which periodically flows a few barrels the only one in the valley. There are five or six wells at Burning Springs that are pumping, all of which are old ones, which produce less than 100 barrels per day. This oil is selling at $10 at the wells. The old wells which were destroyed by the rebels, are now being cleaned out and sunk deeper, while a large number of new ones are being sunk, with good prospects of being rewarded. Most of the parties operating in the neighborhood of the springs are Philadelphia and New York companies. The roads leading from here to the springs are in a terrible condition, it being almost impossible to get through. You can judge when the charge is $3 50 per barrel for hauling between those two points. At times oil can be floated down the Kanawha, but this only occurs when there is a flood.—Should the yield of oil, on the line of the river, warrant the outlay, there is no doubt but what the State of West Virginia will construct a slack-water.

On the Hughes river and its tributaries, which empties into the Kanawha about 15 miles from Parkersburg, much activity in developing the lands is going on, although no oil has yet been obtained from new wells, none of them having yet reached a sufficient depth. At Petroleum Station, on the Baltimore and Ohio Railroad, there are some fifteen old wells pumping, the joint production of which is from 200 to 250 barrels per month. This oil sells at $32 per barrel, at the wells, being of a heavy lubricating nature.

The ensuing summer will decide the question whether sufficient oil can be found in Kanawha Valley to make it pay. Millions of dollars have already been expended in sinking wells, numbering from 500 to 600 none of which have yet reached the required depth. All the lands near what is thought to be the best producing sections are in the hands of second and third parties, some of which is not worth the paying of the taxes. It would be well for parties about organizing companies to appoint a committee to visit the lands before making a purchase, and not rely upon the representations of parties interested. A stranger, to hear the people around here talk, would infer that the creeks and rivulets in the mountains flowed pure oil.

Most of the farmers, after selling their property, purchase in Ohio, or emigrate West. You can travel for miles through some sections of this valley and find nothing but empty houses. They have sold, and gone to seek their fortunes in a more loyal section of the country.—*Public Ledger.*

PETROLEUM IN COLORADO.

Even we of Colorado are not without our oil. In November of '61, we spent most of the month in looking for the greasy fluid, and bought, in company with others, the oil springs of Canon City. We found the oil there to be an excellent article and easily purified, but the supply oozing out of the ground was very limited. We commenced work there, but for lack of tools met with but limited success. We have also been of the opinion that the rocks there were too broken to yield any great quantity of oil.

A close examination of the various stratas of the outcropping rocks found contiguous to these oil springs however, convinced us that oil might be found in other places, and enabled us to trace the oil region to within a few miles of Denver, and much further north and east. We found the oil strata cropping out on Bear Creek, in the Hog Back range, and also beyond the heads of the Bijou, southeast of Denver.

Still further examination revealed the fact that it spread over an immense area of country, extending north, northeast and west, through the Black Hills to Bear river, on the road to Salt Lake, and indeed over no small portion of the country lying between the main range of our mountains and the Salt Lake basin. There is no longer a doubt but that we of Colorado have more oil lands than Pennsylvania or any other State in the Union, excepting, perhaps, California, whose geological structure so far as her oil regions are concerned, appear to be nearly identical with ours.

We consider it more than probable that one-half of that portion of our territory east of the mountains is underlaid with oil. We base this conclusion on the fact, so well established, that the strata lying above the oil where springs exist, do underlie fully one-half the plains of the territory. Of course, in many places the oil lies too deep to be easily reached by boring, or perhaps to be reached at all; but at the same time we possess an immense amount of country where oil may be easily reached, and we are confident that the day is not far distant when oil shall become an article of export from Colorado, second only to that of gold and silver.—*Colorado Mining Regizter.*

OIL IN CALIFORNIA.

We stated that a discovery of petroleum had been made on the farm of Captain Goodrich, a few miles from Napa City. Since then, further examinations and explorations have been made in the marshy ground of the development, which prove of the most satisfactory character. Indeed, so encouraging are the indications of rich springs of petroleum in that locality, that our community are very much excited. Those who have examined the ground, find coal oil in every cavity and wagon rut of the swamp for an area of ten acres. On probing the ground, or handling the slimy ooze with the hands, a strong kerosene smell is perceptible, and on agitating the water on which the blue scum of oil floats, an immediate iridescence is displayed with the peculiar odor already mentioned.

Quite a number of vials of petroleum have been collected with little difficulty, some of which has been tried in lamps, and burns well. The white fatty deposit which is discovered in petroleum regions of Pennsylvania, has been gathered in the small trickling rivulets. Sandstone shale, a primary indication in those regions, crops out from the hills, distant about three hundred yards—and to pile evidence upon evidence, coal in small quantities has been dug out of the hill immediately adjacent. If all these signs avail naught, we have the opinion of a Tennessee coal miner, who examined the coal indications several years ago, when Captain Goodrich was prospecting for a mine of this mineral.

The captain had already a vein of coal opened, which, in penetrating into the hill between ledges of shale, dwindled from six feet to six inches, and kept jumping, every few yards, lower and lower. This miner advised Mr. Goodrich to go to the bottom of the hill, and sink in the swampy ground, and if he did not strike a good coal vein he would find coal oil. There upon the propecting was abandoned, and no further heed paid to the advice.

Measures have been taken for the immediate incorporation of a petroleum company, with a capital stock of $600,000, to be divided into $6,000 shares, Mr Goodrich, on whose property the discovery was made, to have one half the stock, the remainder to be sold as a working capital. Work will be commenced as soon as the necessary arrangements are completed.—*Napa County Reporter.*

OUR PETROLEUM INTERESTS.

A great deal has been said of late, in reference to the oil lands of California. Some parties denying the existence of petroleum in that State, and others asserting its abundance. We give below an article from the San Francisco Mining Press, which discusses this question very ably.

Whether for good or ill, there is no question but that the petroleum interest on this coast is attracting a most marked degree of attention, which bids fair to culminate, as all such excitements are apt to do, in a kind of mania. We have repeatedly cautioned our readers and the public for running recklessly into mining excitements of any class, not that we would discourage every attempt at mining adventure short of absolute certainty, for that would be suicidal to the great leading industrial interest of the Pacific Coast; but to the end, merely, to advise our readers to carefully weigh the chances before, and previous to investing, to see that they are entrusting their money into honest hands, and placing it where it will be judiciously and economically expended. This has been quite too much a land of excitement, and the consequences thereof have been so generally unfortunate, that in the incipiency of the new and important branch of business now opening up before us, we have an earnest desire to see it fairly proven, and then calmly and carefully developed. We

do not, in the elegant language of a cotemporary, expect to "see the grease in largely and regularly arriving quantities from the interior" before "believing soundly in petroleum." The nature of the business is such that petroleum cannot be expected to arrive in quantity until refineries shall be erected on the sea board, where it may be prepared for the market. All we need wait for is the boring of a sufficient number of wells to ascertain whether internal reservoirs of the fluid can be found here as they exist in the Atlantic States. These developments are now in progress in various parts of the State, and a few weeks longer will place this question beyond a doubt.

The existence of a fine quality of petroleum on this coast, we consider is already proven by numerous experiments in this city. We have ourselves seen the crude oil at the well, witnessed the process of distillation in this city, and seen the refined article transferred directly to a lamp in the laboratory and there burned.

We have from time to time noticed the progress of discovery in this direction, until the prediction which we ventured at the outset is now pretty fully confirmed that the crude material may be found in every county comprising both the coast and valley range, from the northern portion of Humboldt to the southern boundary of Los Angeles.

A very important discovery has been announced, in Napa county, the developments of which are very important, and measures have been taken for the immediate organization of a company with a capital of $600,000.

The developments in Humboldt county are said to be very interesting; also in Colusa, where quite a large number of locations have been made. We understand that Mr. Alexander Gamble of this city, and others have purchased a location in this county for $75,000.

Messrs. Kirk & Little have commenced boring a well for the Bolinas Petroleum Company, located on the point at the entrance of Bolinas Bay, Marin county. This is a company which has recently been organized in this city. The capital has already been paid in for an energetic and efficient development of their claim. They are now down nearly sixty feet.

"The Arroyo Hondo" is the name of another company, located on the Bolinas grant, in Marin county, about three miles from the first mentioned company, also on the sea coast. This company is made up of quite a number of San Francisco capitalists, among whom we may mention W. T. Coleman, Louis McLane, S. F. Butterworth, George T. Hearst and others. Messrs. Kirk & Little sent up boring tools on Tuesday last to commence work for that company. Work upon the well will be prosecuted with all possible dispatch.

"The San Pablo Petroleum Company" is the name of still another organization, whose works are located about one mile back of the town of San Pablo, in San Pablo Bay. Messrs. Kirk & Little will commence boring at this location immediately. The site selected for boring is at an elevation of about seventy feet above tide water.

We hear encouraging reports from the Adam's well. An attempt was made to pump, a few days since, but through some defect, the machinery soon gave out, and the pumping ceased, but will soon be resumed. Six gallons of oil were saved during the brief period of pumping.

As they occur in nature it is not always easy to mark definitely the distinction between asphaltum, bituminous shale and bituminous coal, for in the diversities of composition the like elements may at times approach each other very closely in their proportions. The carbonaceous shales possess an economic value, some can be used as coal while others are of utility for the oil which may be distilled from them. From Canada to Iowa, Hudson River shales can be found from 10 to 25 per cent combustible. It is possible that the present predominating phase of our mineral enterprise may result in imparting a commercial value to some of our bituminous shales. A shale alleged to be fossiliferous and named "Lingula," having beds along the Ohio river is now the subject of experiment by oil searches.

The Ohio River Petroleum Company, of New York and Cincinnati, have on their lands, bordering the Ohio river, in Lewis county, a bed of this shale, covering an area of two hundred acres, with an average depth of at least two hundred and fifty feet. Its product is easily fired with an ordinary lucifer match. A single cubic inch of this rock has been known to burn from twenty to thirty minutes, with a bright blaze resembling coal gas, and it has now been proved, by experiments, to yield an unusually heavy lubricating oil, very clear and pure. It is found also in various parts of Grayson, Harden, and other counties, and all along the Nolin, and Rough rivers, and their tributaries, appearing not only in the ravines, but on the higher surfaces. A lump held in the blaze of a lamp or candle, will sparkle sharply and dissolve into a tarry substance.

The experiments of the Ohio River Company to test the character of this shale, were made by the most rude and primitive means. A quantity of shale gathered promiscuously from the bed, was placed on the ground and an iron kettle inverted over it; a lead pipe four or five feet long was run out from the centre of the kettle underneath, and a fire built outside Snow was heaped on the pipe for the purpose of condensation, and in forty minutes from the time the fire was started, oil commenced running. The experiment was made under many inconveniences, yet it is stated that a fine lubricating oil can be produced at the rate of three gallons from every 100 lbs. of shale.

Excellent zinc white has just been made by a new process, by a mining engineer connected with a company in Boston. It is a pure white, and has more body than most zinc white; and it works well, and seems fully equal to the French silver white, or the krems white. It is made in the process of reducing ore, and is in fact a utilization of a product hitherto wasted.

Butler County (Pa.,) people are keeping step to the music of "oil on the brain." They insist, with many plausible reasons, that the outline of the great oil basin is defined by the Alleghany and Beaver rivers, and that by consequence, Butler County is the centre of the first Empire of Oildom. This county has the recognised oil regions of Venango, Lawrence, and Clarion counties on each side of it, and it is right on the line of the petroleum zone, which extends southward through Greene county. The now famous Slippery Rock creek has most of its tributaries in Butler county. For the testing of this and contiguous localities, the Butler Oil Association has been started. It is composed of capitalists of western Pennsylvania, Philadelphia and New York. This association has secured 11,500 acres.

MINING.

THE GREY EAGLE SILVER MINING COMPANY OF NEVADA.

The subjoined extracts are copied from the report of C P. Williams, Chemist and Geologist, on the veins of the Grey Eeagle Silver Mining Company of Nevada, dated Philadelphia, April 15, 1865. We commend these extracts to thoughtful consideration, for they contain matter of significant import to investers in mining enterprises in Nevada, where the rocks are more prodigal of silver than the desert is of water and wood. Mr. Williams says:

The claims of the Grey Eagle Company are located in the Mountain Wells District, Churchill county, Nevada, about eighty miles east northeast of Virginia City, and on the line of the Overland Mail Stage Company, by the coaches of which they are approached and reached after twenty hours travel. The country traversed in the journey from Virginia to Mountain Wells has the general character of a desert, seldom visited by rain, and devoid of vegetation, save a stunted growth of aromatic shrubs, locally called "sage brush." On these plains deposits of common salt are not of unfrequent occurrence, furnishing an indispensable adjunct in the development of the mines of the various regions, by supplying an important agent in the metallurgical treatment of silver ores.

The Mountain Wells District is a new and undeveloped one, its discovery not dating back more than one year. As in the history of all other new mining districts of the Pacific coast, the pioneers were men possessed of but little capital, no work more than that of exploration has been done on the several veins already discovered in the district, but in many cases their bold outcropping edges in connection with the trial shafts and exploring trenches and pits, furnish data sufficiently exact to permit of the formation of an opinion with regard to the inducements they offer for beginning mining operations on them. It will be seen below that my opinions on most of your veins are expressed with a strong degree of positiveness, the result of the natural facilities furnished by the district for the examination of its veins and of comparisons of the phenomena there noted with those of the mineral deposits of the Virginia, Reese River and Humboldt Districts.

The rocks of the region are highly metamorphosed, silicious, argillaceous and calcareous sediments, (such as quartzites, clay slates, or argillities, gneiss and blue argillaceous limestones,) with intrusions of granite, porphyry and trap, the formation being grouped into a series of parallel hills, and having a general trend of nearly N. N. E. and S. S. W. (magnetic.)

These rocks are broken by two series of fractures which have become the receptacles of silver and copper bearing minerals, giving rise to two distinct systems of true fissure veins, the oldest of which has a general N. W. and S. E. bearing, and the more recent striking N. E. and S. W., intersecting the first system and producing the phenomena usually observable in such cases.

In the members of both series the vein matter is a quartz with some manganese spar, through which there are distributed, sometimes in irregular masses, but more frequently in combs, various argentiferous minerals, such as polybasite, (containing when pure 65 per cent. silver;) silver fahlerz, (containing from 17 to 30 per cent. silver and from 14 to 25 per cent. copper, besides sulphur, antimony and iron, and sometimes zinc and lead; and sternbergite (with 30 to 33 per cent. silver,)

From the surface for some distance, these ores have become metamorphosed through aqueous agencies, and the various metals have entered into new forms of chemical combination. In this superficial zone of decomposition the copper usually occurs as the green and blue carbonates, (which impart those tints to the white quartzose vein-stone:) the iron exists in a hydrated serquioxide (gossan), while most of the silver occurs as a chloride. In the Mountain Wells District I had, of course, no opportunity of ascertaining the extent in depth of this zone of decomposed mineral, but in the Reese River District where mining has been longer prosecuted, and where the phenomena of the veins are strikingly analagous to, if not absolutely identically with, those of the lodes of the district under consideration, I found it to extend downward about ninety feet, measured on the inclination of the vein, whilst below this the unaffected ores, (always sulphides) occur. In the Humboldt District the secondary products occur to a somewhat greater depth.

In most instances the veins have well defined walls, often striated and polished, and separated from the vein matter by clayey selvages or flucans. Where the wall rock is feldspathic in its composition (as in the granites and gneiss), they are soft and much decomposed in the vicinity of the veins, greatly facilitating the exploitation of the deposits.

Disregarding the other veins, and considering only those the value of which have been positively pronounced upon, we may recapitulate as follows:

Value of Grey Eagle ore per ton	$540 90
" Grey and Gneisse.....	376 00
" Denckla ore.....	403 42
" Hope ore.....	344 67

These results of carefully conducted analysis of the

run of the veins as yet opened and exposed, will give as the average of the productive veins a value of $416,-25 per 2,000 pounds of ore. Now what will be the expenses attendant on the mining and reduction of the same amount of mineral?

In the consideration of this important question, we will confine ourselves to data collected in the Reese River District (80 miles further eastward), where the conditions of occurrence of the ore are most nearly approached to the Mountain Wells District, and where the circumstances modifying results in the mill are very closely analogous. It must, however, be remembered that the distance from Virginia to La Plata being only about half as great as from Virginia to Austin, the costs of transportation will in reality be much less. But it will not be unwise in such economical questions to consider the maximum of expense.

On the basis that the ores assayed represent what will be found to obtain in the veins, (and such is confidently believed to be the case,) the following will exhibit the value per running fathom of the four valuable veins, calculated on the observed average width of the same:

Name of Vein.	Av. width.	Tons of productive rock per fathm. of vein.	Value of Rock pr. ton.	Value of vein per fathom.
Grey and Geisse	20 in.	5.5	$376,00	$2,072 95
Deuckla	18 in.	5.	403,42	2,017,10
Grey Eagle	11 in.	3.	540,90	1,622,70
Hope	30 in.	8.	344,67	2,757,36

But in mining these deposits dead ground will necessarily be removed, so that the expenses of mining be calculated to a cubic fathom, containing about 20 tons. These will amount in the aggregate to $400, inclusive of timbering and transportation to the mill, to which must be added the cost of the metallurgical treatment of the ores. But in a cubic fathom of ground mined a certain per centage alone contains ore, and this only is treated in the reduction work; I have found the cost for the roasting process below described to be $27 per ton, so that below we have the expense of treating the ore contained in one cubic fathom of ground, mined from the several veins.

Cost of reduction of

Name of Mine.	Percentage of Ore-bearing ground.	Ore from 1 cubic fm of ground mined.
Grey and Geisse	28.5 per cent.	$148 50
Denckla	25. do.	135 00
Grey Eagle	19. do.	81 00
Hope	42. do.	216 00

The average of which is $145 12, which will represent the cost of treatment of a cubic fathom of ground mined, and the account will stand thus:

Mining one cubic fathom of ground	$400 00
Reduction of ore in one cubic fathom of ground	145 00
To which add loss in process of extraction, say 20 per cent. the contained silver	423 50
Total expense per fathom	$968 53
Whilst the average value of the same is	$2 117 53

The details of the process of silver extraction, of which the above is the cost, consist in dry crushing the ore sufficiently fine to allow it to pass through a No. 60 sieve; subsequently wasting it with salt in a reverberatory furnace and amalgamating the resulting chloridized ore in iron pans—either Hepburn's or Wheeler's. A stamp weighing 650 pounds, capable of wet crushing, when run with a velocity of 60 blows per minute one ton of ore per twenty-four hours will dry pulverize to a sufficient degree of fineness in the same time, about seven-tenths of a ton. This will require, on the average, some 7 per cent. salt, (worth in Reese River $20 per ton,) and will constitute two charges for a furnace requiring each about seven hours for a thorough chloridizing roasting. A ten stamp will require six furnaces and six pans, and is capable of working 7 tons of ore. The cost of putting a mill of this capacity in operation, will be about $55,000. Labor is worth from three to four dollars per day; wood six dollars per cord. These figures of value and expense are all to be understood as being on gold basis.

The wood ranch belonging to the company is within two and a half miles of the La Plata, and comprises four hundred sixty-five acres of land, clothed with a species of scrub cedar and juniper. The amount of cord wood I have estimated at about fifteen cords to the acre. Wood can now be contracted for in the Mountain Wells District for five dollars per cord. This will be about the ruling price for some years to come, so that an adequate supply for milling and mining purposes can be obtained at not greater cost. Ultimately, and more especially if exploitation is vigorously conducted in the region, the price will be much greater, unless some cheaper mode of transportation be completed. After nearly five years of vigorous work in the Virginia District, the price per cord of wood has reached eighteen dollars.

Water in suffient quantities for all boiler and milling purposes can be obtained near any desirable mill site, either from abundant and persistent springs, or from wells sunk to a depth in no instance greater than twenty feet.

The canons or gulches separating the mountain ridges or hills of the district are generally broad with easily ascending grades, with excellent natural road-beds, requiring nothing more than the removal of the sage brush and the larger boulders.

An excellent mill site can be procured at once without additional expense to the company, near the southern end of La Plata, the access to which from all the production veins will be over a descending grade. The distance in no case will be over two miles.

GOLD—COLORADO.

We know what gold is in the sands of Georgia and the Carolinas; we know that it is taken from the quartz of Nova Scotia and Canada; who has not seen those sparkling nuggets in their white natural setting, lying temptingly in jeweller's windows, to vaccinate for speculation through the eye; we know of it in California, where golden treasure, first in the gulches, then in the quartz rock, the attenuated mother of nuggets has attracted hundreds of thousands, and built up a nation on the Pacific coast; its yellow millions making even, and more so, the deficit caused by old wars, trifles compare! with war and deficit now under experience.

Then comes Nevada, youngest born of America's daughters, just budding out in metallic richness, and Colorado, and Idaho, and Washington Territory. By and through all these we are familiar with gold in the abstract, its concrete externalization now under an eclipse, not lost, as the reader will learn by patiently reading this through. With this perturbation towards gold fields in general, let me use Colorado as a field of vision for the facts referred to in connection with the question asked in this communication.

We are not writing to awaken speculation or puff a field where money may be made or lost, and therefore it is not necessary to go fully into the statistics and condition of that Territory—which, by the way, is as large as New England and plus New York—but for the sake of the point before us, use some of the established facts, new in some of their features not only to the casual reader, but to the student also, where demonstrations have, if not proved, strongly pointed to a sulphide of gold; and for the sake of being understood, it may be well to follow the observations that practice has afforded there somewhat consecutively.—There, as elsewhere, gold was first found in the gulches. It was very early perceived, however, that that feature was not to be the making of that country, and the chief operations were directed to the quartz lodes, some of them paying very richly; but the quartz in a lode soon gave out, the crevice narrowed to a seam—they call it coming to a cap, or being in cap. Many at this point abandoned their claims and sought others; some at much expense and labor persevered through those caps, reaching iron pyrites, and then abandoned their work. About this time (1860 and 1861) very few people really thought that this Territory would make its mark permanently as a gold producing place. Experiments in this iron proved it to be auriferous; careful assays showed it to be unusually rich in gold—then dawned the morning of Colorado, for these veins or lodes are very numerous, and inexhaustible.

The districts painted yellow on the maps—to be suggestive—are all, or nearly all, in Gilpin county.—They are found to extend beyond, and accident only has distinguished this point: and late explorations find them abundant fifty or a hundred miles in every direction, and may be safely said to be a feature of that mountainous region—and the limited area now attracting so much attention is, in comparison to what is yet to be painted yellow, not more than the county of Suffolk in area is to the State of Massachusetts. There in that small space is gold enough that can be reached, if it can be separated and saved, to pay the National debt in two years.

Now, after so bold a statement, what are the facts? Practice has demonstrated that there is a handsome profit in working gold ore that will yield, by crushing and manipulating, $15 to $20 per ton. There is very little business done that pays so well as gold mining in this iron, as it is called, at $20 per ton, or as it is measured there, $200 per cord (10 tons); the statements which are and may be made here are not random ones, but are proveable facts. Careful assays show generally from $1,000 to $3,000 of gold to the cord, where only the trifle mentioned, $100 to $200 is saved—the expense is all incurred in saving this fraction; the tailings are generally saved with greater or less care, with the expectation that some plan will be discovered to make available the larger portion as yet unreached.

This iron or pyrites in these veins grows richer as you sink in depth—there is scarcely an exception to this rule—and also the deeper the shaft is sunk the gold yields less easily; that is, while an assay shows invariably more, a practical working of them shows relatively less, the tailings being richer, and at present valueless. There are some of these ores that assay $2,000 a cord, yielding practically about $100, and mathematically should show $1,900 remaining in the tailings, and they do show little or none; it has escaped. This is not usual, but there are some cases of this description.

There have been many plans invented and imported to save this gold, but as yet none have proved successful, except the process of Crosby & Thompson, where one machine on the Excelsior property is in active operation, the principle of which suggests this communication. These practical chemists and metallurgists, seeing what was needed, and observing the waste of gold in manipulations not always found in the tailings, came to the conclusion that it escaped in vapor, and continuing to experiment, and build, and alter, and substitute, as new facts or phenomena presented themselves, have demonstrated that gold, if not volatile, is so nearly so that the practical working of it is the same as if it were.

No one will deny that the sulphur carries the gold, and it is observed that these sulphates of iron, by some natural system (which it is not the object of this writer to theorize upon), are nearer the surface the further north they are found, and the nearer the equator the greater the depth before being reached. In Colorado this iron is 30 to 100 feet more or less from the surface elevations and disturbances affecting their locality as a matter of course. The persons referred to experimenting in reference to the volatility of gold, have used all the variety of ore, or enough to admit of a comparative generalization, and have satisfied themselves that the gold does not exist in the sulphides as a metal; that it does not require melting to evolve from these sulphides visible metallic gold where it was invisible before to microscopic vision. It is impossible to elaborate this subject fully in the space allotted to a newspaper article, but the foregoing assertion is justified, through demonstrations reached during the gradual perfecting of this process into a practical working machine—doing what it claims on the spot, to the astonishment of everybody but the men who have been by constant experiment working to this end, step by step.

In this arrangement the ore, after being crushed into a fine powder or sand (this being done in all systems of working gold), and being generally wet, is passed through a drying cylinder into another one where it is burned. If the ore be dry the former is superfluous. These cylinders are some ten feet in

length, and three in diameter. The latter revolves on a hollow six inch axle, desulphurization caused by heating the cylinder to about 800 degrees, making them a dull red. This is mentioned to give the inexpert in such matters an idea of the moderate degree of heat required. The cylinders are slightly inclined, just enough so that their revolutions will carry the ore through in about so long a time; at the outlet the desulphurized ore falls into a receiver and the vapor passes out also, above it.

Passing up, it is conducted through spray, where it cools, and the gold becomes metal. We say condenses, notwithstanding a chemist will smile at the term, as we did before a knowledge of the facts which we now possess. It takes 2,500 degrees, remember, to melt gold. It takes the Parker lens or an electric current to make it volatile. This operation is all performed at a heat less than 1,000 degrees, about 800 degrees to approximate exactness. After cooling by spray as above referred to, the fine particles of gold can be seen, so fine as to float in water, and may be seen with a microscope three weeks after immersion, too small to sink or separate the particles of water.

It may be well to state here that the ore, as taken from the lode or crushed to a powder, shows no visible gold. We are aware that a certain proportion of the ore in the streak of the vein, in some lodes, is supposed to be the result of fire. There may be specimens that conflict with this statement. So, also, are specimens frequent where bits of seggregated gold may be seen and picked out. Such cases are the result of oxydization, or chemical or igneous action, and really no more conflict with this statement than a retorted lamp does; they are the result of action, and are not primadial.

This process of saving gold as volatile or sublimated, shows that from forty to fifty per cent of the gold would pass off with the fumes, and is saved by the arresting of it in the condenser. Now, whether a metal or not, all the facts and phenomena point to vapor—and without making an assertion, we can say, practically, it is the same as if it were, for, acting upon the principle, all the gold is saved.

Now admitting what is stated to be true—and it is based on a practical working operation, and not on theory, and then bearing in mind that these lodes number thousands—that the appropriation of them as yet extends only a few square miles—that the number of lodes to be availed of is innumerable—that they are inexhaustible, they being emitted from the centre up, and no end as to the depth but the practicability of working them, one can safely make some estimates justifying the prophecy before made. Leaving out now the yet unappropriated lodes, only figuring upon what is known, owned, and worked—in a word, taking only the lodes upon which operations are now being made and work them at their full or practical capacity, and save all the gold which the process referred to does and does all the time, the product would be four million dollars a day in gold.

This being practically a much easier operation than would seem to the prophet of 1861, the raising of four or five billions of dollars in the space of three years, which has been done, and more, to meet the expenses of this war, the assertion before made of the effect upon the world's property and commerce is a reasonable one. Referring again to the $4,000,000 a day, we can say it can be just as well twenty millions, or any sum, as four, because the neoulae in the background, uncrystalized as yet into working enterprises, will make up for all contingencies.

We estimate the labor required to produce $4,000,000 in gold per day to be ten thousand men and twelve hundred machines. How long it will take to systematize this labor and produce the machines depends upon the faith of those who are or may be moved in that direction. If it be true that the system is perfect and practical, and that is demonstrated by its action—by the practical working of one machine constructed upon a principle that can be duplicated ad infinitum—then as fast as that light passes into human beings, we shall approximate to these astonishing results. The product of California was a special Providence almost for the country at the time needed. America seems to have a supply for every demand—coal and oil when wood and whales subside, and now, just at the right time, a volatile element, apparently inexhaustible, capable of being condensed into gold, and in magnificent proportion to the increased demand to meet the wants of this people, now of such magnitude as almost to come under Herbert Spenser's classification of God, Time, Space, etc., viz.: as being in the realm of the unknowable. Concluding, again, with the subject before us—as gold is universal in value, of ready availability of transmutation into human weal—no overstocking the market, like articles even of prime necessity—the end of this country in national bankruptcy is indefinitely postponed.—*Boston Transcript.*

COPPER & AMERICAN COPPER MINES.

It is an interesting and curious fact that the price of copper increases with the increase in production.—Thirty years ago when the aggregate production of all the mines in the world was but 25,500 tons annually, the price in the chief markets was but $350 per ton.—From that time to 1855 the yield gradually rose to 55,000 tons per year, and the price to from $450 to $475 per ton. It is now $500, and the annual yield not less than 70,000 tons, which gives $34,000,000 a year as the price of the copper production of all the world. The annual gold production of all the mines in the world, is not three times as great as this amount. Why the demand exceeds the supply of this metal is answered in the great usefulness of copper, and the multiplicity of uses to which modern civilization, science, art and discovery apply it; as also o the additional fact that the mines of the Old World are beginning to fail, or at best have to be worked at far greater cost in the production of a ton of copper than they were thirty or forty years ago. From copper and zinc we make brass, which enters into every metalic art, from the manufacture of a watch or kettle to a cannon. Of copper and tin we make bell metal and the bronze of statues. Tons of copper are used up in currency both in Europe and America. It is mixed in the composition of knife handles, ornaments to harness, and enters into the service of every household, or trade, or art from the highest to the lowest.

But what absorbs most of it is the ships of commerce, all of which must be copper bottomed, and so, just as commerce expands, the copper market will enlarge. Hence the recent discoveries of copper in America obtain even greater importance to the world than all our gold and silver production. The world might manage to get along without gold or silver.—They are of little intrinsic worth. But next to iron, copper is the most useful and indispensable metal.

Up to the year 1863, Great Britain and Chile furnished more than half the copper of the world—about 14,000 tons each, yearly At that time the United States produced but 2,000 tons. Cuba, Austria, Australia, and Russia were all ahead of us. Our mines were poor and scattering. In 1853 the Lake Superior mines began to attract attention and capital. In 1857 the Lake Superior mines yielded about 5,000 tons of pure copper, valued at about $2,000,000. In 1864 the yield was 14,000 tons, valued at $7,000,000; or one fifth the value of the whole world's copper production of 1853. These mines are not yet fairly opened, and judging from the interest manifested in them by the newspapers of Chicago, and from their rapid increase in production for the last three or four years, it is not at all extravagant to estimate their annual yield ten years hence at $20,000,000; full half as much as the yield of the gold mines of California in the year 1864, and four-sevenths as much as the copper yield of all the world in 1852. But California and Arizona promise fairly to surpass Lake Superior within the next decade. There is perhaps no mine in America as productive as the Union mine at Copperopolis will be in a year or two more, when all the company's arrangements for turning to profitable use their inferior ores shall be completed. The success of the Union mine in this respect will be shared in a great measure by other copper mines in the State, and the name of our copper mines is legion. They are being developed in every county from the Klamath to the Colorado and Gila, and from the Sierra Nevada to the sea. In England they work and make a profit out of two per cent. ores. Here, so far, nothing below twelve per cent. ore has paid. With railroads, smelting works at the mines, and capital, we can even in California, profitably work five and six per cent. ores; and whenever that point is reached, this State and Arizona will yield annually from thirty to forty millions of dollars' worth of copper bars. Hundreds of mines are impatiently waiting on these three things—capital, smelting works and railways to convey their ores cheaply and rapidly to the furnace.—*Stockton Independent.*

Quartz mining, says the Colorado Mining Gazette, has been pretty much reduced to a system. It is given up that rock, which is worth $25 per ton, will pay to work even in Colorado. The cost of mining here is very difficult to arrive at, but in the best regulated establishments, where all the work is under one roof, it cannot much exceed twelve dollars per ton, once a mine has been opened. Where water can be used as a motor, all or a portion of the year, the cost will fall considerably below even this, since wood is worth $10 per cord. In California it is estimated that seven-eights of quartz veins are to poor to pay for working, that is to say, the rock is not worth $14 per ton. We think we have shown that seven-eights of our rock will pay to work, that is to say, that it is worth over $25 per ton. We had no need to do this for the satisfaction of the people in this country, but we are anxious to convince our Eastern friends that the Colorado gold mines, though they bear the same characteristics as those of California, are yet different in one respect—they are, on an average, five times as rich.

We claim that our ores will yield an average of $45 per ton, and that it need not cost over one-third of that amount to work them. Further, that the expensive experimenting now going on, will at no distant day, place the former figures at $60, and that peace with the Indians, peace at the South, the introduction of capital, the improvement of our arable lands, experience in mining, the use of pumps and other economizing machinery, and finally, the construction, this far, of the Pacific railroad, will reduce the latter, at least one-third, which will leave a profit of $70 per ton on gold mining in Colorado.

PLATINUM.

Platinum has been frequently noted as one of the metal products of the Pacific coast, occurring there as elsewhere, in auriferous sands. Though an associate of other metals, the platinum grains have but one or two exceptional cases been found in place in the rock. We have, however, a statement that parties in Virginia City, Nevada, are now crushing rock from Cedar Hill, north of the town, and realizing therefrom an average of about seven dollars per day to each hand. We have no account of the matrix of the platinum in this case, which is desirable, as the deposit would seem to possess some peculiar features.

This, we believe, is the first special working of the platinum in the Pacific region which has afforded compensatory results.

As the utilization of this metal is extending, it is needful that other sources of supply should be obtained than the present very uncertain ones. A recent patent for improvement in mirrors may be cited in this connection to show the increasing employment of platinum in the arts. The patent is for a process to platinize glass for mirrors, instead of "silvering" it with the amalgam of mercury and tin. The new reflecting material is prepared and applied as follows:—"Dissolve two-thirds of an ounce of platinum, by means of heat, in two and a half ounces of muriatic acid and one and one-sixteenth of an ounce of nitric acid. Evaporate the acids; pulverize the mass, reduce with alcohol, and apply the solution with a brush to the surface of the glass. The glass is then heated in an oven till it reaches the cherry-red color, when it is allowed to cool slowly and the operation is finished."

The process, it will be seen, is simple. It makes the reflecting surface more durable than by silvering as well as more brilliant, and through it large mirrors can be made as readily as small ones without defects in the reflection.

GAS.

THE SUPPLY OF GAS IN THE CITY OF LONDON.

A report for the past year by Dr. Letheby as to the illuminating power and chemical quality of the gas supplied to the City of London, has recently been issued. Dr. Letheby, it should be stated, is not only Medical Officer of Health, but Gas Analyst for the City of London, and the report in question refers to a period of 12 months. The illuminating power, he says, has been tested on 2,809 occasions, and each of those testings was the average result of ten observations. The gas has been burnt according to the provisions of the Act of Parliament—namely, from an Argand burner of 15 holes with a 7-inch chimney, and at the rate of five cubic feet per hour. The burner which is now used differs from the old burner of 1860, in the circumstance of its having an internal aperture of 0·44 of an inch instead of 0·57. This checks the supply of air to the gas, and, by preventing over-oxydation, raises the illuminating power about 12 per cent. The burner is strictly in accordance with the provisions of the Act of Parliament, and it has been used for the last 12 months.

The results of the 2,809 testings of the gas were that the range of the illuminating power had been from 11·66 standard sperm candles to 16·64—the average for the year being 13·70 candles. That of the Chartered Company had ranged from 9·35 candles to 16·07, the average being 13·14; and that of the Great Central had ranged from 10·77 to 16·20, the average being 13·42. Of 939 testings of the City Company's gas during the year, there had been but two occasions when it was below the Parliamentary standard of illuminating power, 26 had occurred during the last quarter, and of these 23 had occurred between the 21st of January and the 18th of February. He was, therefore, led to think either that there had been lately some great neglect in the process of manufacture, or that there had been some experimental investigation going on at the works during the month in question.

On comparing the illuminating power of the gas supplied to the city during the past year with that of former years, there had been a considerable falling off in the quality of both the Great Central and the Chartered gas. While the illuminating power of the Great Central gas was equal to 14·47 candles, as estimated by the new burner, in the 10 years preceeding 1862, it had been equal to only 13·42 candles in the year which had just expired; and with respect to the Chartered gas the falling off had been from 13·70 candles to 13·14. The chemical quality of the gas had been very dissimilar in the case of the three companies. That of the City Company had been of late almost uniformly good, for it had been perfectly free from ammonia and sulphuretted hydrogen, and had rarely contained more than 20 grains of sulphur in 100 cubic feet. The Great Central Gas had also been free from sulphuretted hydrogen and ammonia, but it had nearly always been over-charged with sulphur; and with respect to the Chartered gas, it had lately been generally under the maximum quantity of sulphur, but it had always contained an excess of ammonia. In the course of the year 840 examinations had been made of the gas for sulphur—that is, 280 examinations for each company; and the range had been from 14·4 grains per 100 cubic feet to 35. The average amount in the City Company's gas had been 19·4 grains, in the Chartered 20·1, and in the Great Central 21·9—and of the 280 examinations of the gas of each company, the City Company's gas had on 93 occasions contained more sulphur than was sanctioned by Parliament, the Chartered on 139 occasions, and the Great Central on 226; but it was proper to observe that during the last quarter the City Company's gas had been only twice above the amount, and in the preceding quarter only four times. So also with the Chartered the numbers had fallen from 61 in the quarter to 19—but the gas of the Great Central Company continues to have an excess of sulphur.

The pressure of the gas during the year had generally been from about 8-10ths of an inch to 2½ or 3 inches; the average of each company being one and a quarter inch.

REMOVAL OF BISULPHIDE OF CARBON FROM GAS.

Mr. Lewis Thompson has published a very simple process for purifying gas from bisulphide of carbon — It is based on the fact that the bisulphide and the vapor of water cannot exist together at a red heat, mutual decomposition taking place with the formation of sulphuretted hydrogen and carbonic acid.

$$CS_2 + {}_2HO = {}_2HS + CO_2.$$

The removal is carried out practically by mixing the gas as soon as it leaves the hydraulic main with a certain proportion of steam, and carrying the mixture through a tube heated to a fully cherry red. The length of this tube must be proportioned to the velocity of the current, so that there may be time for the whole of the mixture to become heated. The products of the reaction are, of course, removed by the ordinary methods of purification. Gas from ordinary coal so treated, does not, according to Mr. Thompson, have its illuminating power diminished by the treatment.

HOT-GAS ENGINE.

Mons. T. Million, engineer, of Paris, France, has patented an engine to be worked somewhat in the manner of the Lenoir gas-engine and the gas-engine of the late Dr. Drake; but, instead of common street-gas, carbonic oxyd is used. The gas is made by forcing air through a thick fire, and is mixed with air on its way to the engine, and exploded in the working cylinder by electricity. It is illustrated in Le Genie Industrial for March, 1865.

WATER LIFTS *v.* HYDRAULIC LIFTS.¶

Water may be economically used as power in many ways, namely—by gravity and also by pressure—by simple gravity or actual weight in an open vessel; by pressure, as in Sir W. Armstrong's machinery, cranes, &c. One thousand gallons of water weigh about 4½ tons. In many towns where there is a water supply under pressure, this volume and weight of water can be sold to a profit at sixpence, and can be delivered into tanks or cisterns, according to the head of pressure, 50 ft., 100 ft., 150 ft., and 200 ft. and upwards. At Oldham, water is delivered and used at the railway warehouses in such manner that every gallon consumed at the station below, for locomotive or for other purpose, works its way down by lifting equivalent weights of goods into the several floors of the warehouses. At the Duke of Bridgewater's canal and colliery tunnels, water has been used more than a century for lifting coals at certain balance pits, the liberated water supplying underground canals. Lifts for warehouses, hotels, and even private houses, are in use, on Sir W. Armstrong's principle, and such lifts may be made in a small compact telescopic form, to do much of the carrying upstairs-work of a private house. These lifts may be as general as they are now rare. There is nothing new in the water-lifts of Paris.—*London Builder.*

Vegetable Origin of Diamonds.—Prof. Geeppard, who recently obtained the prize offered by the Dutch Society for an essay on this subject says:—"In my essay I have given ample proof that at one time diamonds were soft bodies. I have not yet attained any results with respect to graphite, but in diamonds I have found numerous foreign bodies enclosed, of which, if they cannot be said to be evidently and undoubtedly vegetable in their origin, it would, on the other hand, be difficult to deny their vegetable nature altogether."—*Seemann's Journal of Botany.*

ANOTHER SHEET OF THIN IRON.

The London Mining Journal has the following:

The mill manager of Messrs. W. Hallam & Co., of the Upper Forest Tinworks, near Swansea, has succeeded in making a sheet of the finest appearance and thinnest iron that has ever yet been seen by mortal eye. The iron from which the sheet was rolled was made on the premises. It was worked in a finery with charcoal and the usual blast; afterwards taken to the hammer to be formed into a regular flat bloom; from thence conveyed to the balling furnace—and, when sufficiently heated, taken to the rolls, lengthened, and cut by shears into proper lengths: piled up, and transferred to the balling furnace again; when heated, it was passed through the rolls, back again into the balling furnace, and when duly brought to the proper pitch, was taken to the rolls, and made into a thorough-good bar. It was then taken to the tin mills, and rolled till it was supposed to be thinner than 23 grains; afterwards passed through the cold rolls to give it the necessary polish; and now it stands on record as the thinnest sheet of iron ever rolled.

The sheet in question is 10 in. by 5½ in., or 55 in. in surface, and weighs but 20 grains, which, being brought to the standard of 8 inches by 5½ inches, or 44 surface inches, is but 16 grains, or 30 per cent. less than any previous effort, and requires at least 4,800 sheets to make one inch in thickness. That calculation is made in a rough way, without any inch guage—but, if anything, is considerably under the mark. A sheet of IC tin plate measures 10 in., by 14 in., or a surface of 140 in., and weighs ¼ lb. A box is made up of 225 sheets, but as many 245 can be pressed in; the depth of the box is 3½ in. The latter number of sheets being taken as our guide, we have 70 sheets to the inch. In order to make the matter more clear, we will raise the 55 in. of 20 grains to the ordinary 10 in. by 14, or 140 in., the weight being 50 10 11ths grains. We now find that ¼ lb. avoirdupois contains 3,500 grains troy weight—we now multiply 3,500 grains by 70, the number of sheets of IC thickness to 1 in., and + by 50 10 11ths grains, being the weight of 140 in. of the thin sheet in question, which gives us as answer 4,812½, that number, therefore, being required to make 1 in. in thickness. I think it is brought intelligibly before your readers: I would just add that the gravity of the iron in question, from which the thin sheet was rolled, was from 7·8 to 7·9, and was not made in what is generally considered the most superior—that is, hollow fires.—The plan answers admirably for tin plates, and, in the present instance, fully corroborates that view of the question; for had not the iron been of a superior quality, it could never have stood the stretching, for it is no less than 68¾ times thinner than the ordinary IC tin-plate. Of course, in a mercantile view, it would never answer to make such thin sheets; in fact, it is hardly worth while making even taggers; and most makers of tin-plates would rather be without such orders, unless in large quantities. For the present, Messrs William Hallam & Co., of Swansea, stand at the top of the tree.

Thin Sheet Iron.—Assuming that the 2,000th of an inch is about as thin as iron can be rolled in sheets of more than a few square inches surface, the Hope Company has tried the experiment of producing a large plate of that substance, and have succeeded in turning out a very beautiful specimen 2ft. 2in, in length, and 8½in. wide, the surface contents being, consequently, no less than 221 sq. in.; and it is stated that the managers are sanguine that they will succeed in rolling similar sheets 60in. long. The iron appears to be of excellant quality, and with the exception of one or two extremely fine holes, which are observable upon placing a stong light behind it, the sheet is perfect. The weight is somewhat under 178 grains, which is at the rate of 1·25 sq. in. to the grain. Compared with the thinnest tissue paper that can be purchased, the iron is so thin that it would require five sheets of the metal to amount to the same thickness as three sheets of the tissue pa-

per. Whether further efforts will be made in the same direction, of course we do not know; but we think it must be admitted that whether in the production of thin iron or of thick, for it must be remembered that it was the 13½in. armour plate of John Brown, of Sheffield, that led the Sligo Works to roll their thin sheet, the English manufacturers are thoroughly able to produce any quality that may be demanded of them.

From the Internal Revenue Law of the United States; as amended by Act of March 3, 1865, we make the annexed extracts:

MINERS' LICENSE.

Miners shall pay for each and every license the sum of ten dollars. Every person, firm, or company who shall employ others in the business of mining for coal, or for gold, silver, copper, lead, iron, zinc, spelter, and other minerals, not having taken out a license as a manufacturer, and no other, shall be regarded as a miner under this act: *Provided*, That this shall not apply to any miner whose receipts from his mine shall not exceed annually one-thousand dollars.

DUTY ON MINERAL COAL.

On mineral coals, except such as are known in the trade as pea coal or coal that will pass through a five-eighth inch, and over a three eighth inch mesh and dust coal, a duty of five cents per ton—2,000 lbs. *Provided*, That in case of contracts of lease of coal lands made prior to the passage of this act the lessee shall pay the tax, if not otherwise agreed: and all duties or taxes on coal mined and delivered by coal operators on contracts heretofore made shall be paid by the purchasers thereof, if not otherwise agreed by the parties.

DUTY ON QUICKSILVER.

On quicksilver produced from the ore, a duty of two per centum ad valorem: *Provided*, That quicksilver may be transferred, without payment of the duty, to a bonded warehouse established in conformity with law and treasury regulations, under such rules and regulations, and upon the execution of such transportation bonds or other security as the Secretary of the Treasury may prescribe; said bonds or other security to be taken by the collector of the district from which such removal is made, and may be transported from such warehouse to a bonded warehouse used for the storage of merchandise at any port of entry; and quicksilver so bonded may be withdrawn from the bonded warehouse for consumption on payment of the duty or removed for export to a foreign country without payment of duty, in conformity with the provisions of law relating to the removal of distilled spirits, all the rules, regulations and conditions of which, so far as applicable, shall apply to quicksilver in bonded warehouse; and no drawback shall in any case be allowed upon any quicksilver upon which any excise duty has been paid, either before or after it has been placed in bonded warehouse.

Section 5 of the Amendatory Act increases the duties imposed in Section 94 of the original Act, one-fifth or twenty per cent, therefore, the per centage on articles of manufacture enumerated in Section 94, is 20 per cent. greater than in the text, except on coal illuminating oil, refined and naptha, benzine and benzole, wood-screws, paper of all descriptions, printed books, magazines, pamphlets, reviews, and similar publications, cotton, manufactured tobacco, snuff, cigars, cigarrettes, and cheroots.

This makes the duties on the annexed minerals and metals as follows:

Coal (with exception specified)	6 cts. per ton.
Salt	71-5 cts. per 100 lbs.
Plate, freestone, marble and all building stone	3 0-6 p. ct. ad val.
Quicksilver from ore	2-4 " "
Blooms " "	$3.60
Pig Iron	$2 40 per ton.
" Cop	3-6 per ct. ad val.
" Lead	3-5 " "
" Spelter	3-6 " "
Oxide of Zinc	42 cts. p. 100 lbs.

[Written for the Mining and Scientific Press.]

WORKING GOLD ORES.

A proper knowledge of the laws of chemistry, philosophy and mechanics, involved in extracting or saving gold from the ores and gangues with which it is found associated, is of the greatest importance to all who are engaged in mining.

The principal amount of gold now obtained about Grass Valley is in the veinstone or quartz and sulphurets of iron, lead, zinc and copper. Chemical authors say that it is never found combined with any of the metalloids, forming an ore, but always in the metallic state, alloyed with metallic silver or copper, etc., to a greater or less extent, but never chemically pure. Pulverising the quartz and earth, is purely a mechanical operation, and the best mode, whether by stamps, arrastras, or by centrifugal mills, is to be determined by the engineer constructing the works, and the mode of treatment to be followed after the ore is pulverized.

The affinity of gold and mercury to unite and form an amalgam is taken advantage of to collect the fine particles of the former as they are set free in the battery, by adding mercury from time to time in the right proportion, according to the richness of the ore, as the work progresses Some put amalgamated copper plates in the battery.

After leaving the battery, the pulp and water pass over amalgamated copper plates of a length sufficient to insure the retention of all the free gold, or gold amalgam, that may pass through the sieves. In this way it is claimed that ninety-five per cent. of the gold set free from the quartz and sulphurets can be saved without the use of blankets.

Another method is now being tried called the Ryerson process, which consists in dry and very fine crushing of the ore by any means that may be adopted, then putting the ore into a wrought iron cylindrical tank, of capacity to hold half a ton, arranged with openings for the admission and discharge of ore which can be close steam tight. The ore is introduced with a sufficient quantity of mercury and openings closed, when a jet of superheated steam is passed through a coiled perforated pipe in the tank and continued as long as the operator thinks best; at the time we saw it in operation the steam was continued about five minutes, the cold water was introduced, the ore thoroughly wet down, when the lower valve was opened and the ore washed out into a wrought iron spout or bin above an amalgamated copper amalgamator.

The ore operated upon contained free gold, sulphuret of iron, antimony, zinc and silver, the sulphurets contained a portion of the gold enveloped in them mechanically. It is claimed for this process that the sulphurets are partially decomposed, the mercury vaporized and consequently placed in a condition of stronger affinity for the gold, so that every particle has its coat of mercury by which its weight is increased and the chances of its being obtained much facilitated. Does this method of manipulation bring about the chemical re-action sought? Let us state some facts and then draw our conclusion.

Mercury must be heated to 600 degrees of heat before it is volatized, which is 200 degrees above melted lead or a dull red heat. In order to derive any advantage from volatililized mercury in this operation, the whole mass of ore must be heated to that point; which would require more than five minutes. Doubts might be entertained whether it could be done at all with the apparatus now in use. The affinity of mercury for gold is increased as the heat increases so that mercury heated nearly to the volatile point will dissolve coarse grains of gold or amalgamate it almost instantly into a paste; this method is used by dentists to form amalgam.

Superheated steam will oxydize iron sulphurets at a red heat, but not those of silver, zinc or antimony; so that in the above mode of working there can be no advantage claimed over the sulphurets.

The amalgamator used in this process is made with a copper bottom about ten or twelve feet long, about twenty-four inches wide with riffles in the bottom to hold mercury; the sides are of copper, also about ten inches high on the whole set at a proper angle to give the water and sand a current; a lengthwise horizontal motion is given to it by an eccentric cone driven by the engine. I would suggest that the inventor has got his amalgamator wrong end up, and that it would do well to turn ends. Then it would not require any other motion than to have the ore equally distributed at the head, and to have it washed down by a proper current of water; the loss of mercury now sustained would be saved, as well as the power required to give it such convulsive motions. ORLANDO JENNINGS.

FUTURE EXISTENCE.

It is hard to think when the ties of kindred and friendship are linked around the heart—when intellect has achieved its lofty triumphs and has wound its power into song, and left it in sculptured beauty, when the noble, the good, the loved, and the beautiful have passed to the grave—it is hard to think that we shall never behold them again; we cling to the hopes that sprang up amid these dark thoughts and tell us these things are so. We look for analogies in nature to confirm these hopes. We behold the mean, groveling worm of to day, transformed, on to-morrow, a thing of glory, that flutters in the beauty of a new and brightened existence, and we say, "then shall man die and live again." We hold the seasons of the sere leaf and falling fruit—the snow-wreathed hill and ice-bound stream, and when they pass, and when the glad earth rejoices again, and streams break their fetters, and the trees put forth their loveliness, and the flowers look up and smile at us, we exclaim—"Thus shall man, who fades away like the summer flower, or the autumn leaf, break from the bonds of death and exult in a new clime, where the sun never sets, and where all is bright forever."

CANNEL COAL.

About a century ago, the Duke of Bridgewater was the proprietor of a large estate situated at Worsley, England. This estate contained valuable coal seams, easily to be got at, but nevertheless comparatively worthless, in consequence of the great expense and difficulty of transporting the coal to market. Under the duke's directions, Brindley constructed a profit paying canal between Liverpool, Manchester, Worsley, and the Great Wigan district. This canal appears to have been finished about the year 1766 and storehouses were built at various points in its course, where the duke's coal was deposited, for the purpose of supplying the immediate neighborhood. At this time, says Newton's Journal of Arts, the word kennel, or kannel, was generally employed in Lancashire and Cheshire to designate an artificial water course; and even Brindley himself in some of his letters, speaks of the new undertaking as the duke's kennel. It is not, therefore, surprising that the duke's coal should have received the name of kannel coal, being, so to say, kennel borne; and this name would be peculiarly applicable at Liverpool, where sea-borne coal from Whitehaven, in Cumberland, had long been in use, and was, moreover, an article differing in many of its qualities from the duke's coal.

TOAD IN LIMESTONE.—It is stated that in the Dyke House Quarry, West Hartlepool, England, a living toad has been found embedded in the solid rock, 25 feet from surface, and 8 feet from any spring water vein. The toad is described as pale when first seen, gradually darkening on exposure to a fine olive brown; it barks when touched, and is now on exhibition at the Rooms of the Hartlepool Natural History Society, at 1d. per head.

Truth always fits. It is always congruous and agrees with itself. Every truth in the universe agrees with all others.

A Chinese company recently bought a mining claim near Grass Valley, for which they paid $12,000.

MOUNT ETNA.

The evacuations of Mount Etna during the late eruptions have been examined with much care by an intelligent and, I may say, an adventurous chemist, M. Fouque, who has remarked a total absence of sulphur and its compounds in them. This, which seems at first sight extraordinary, has often been observed before, as related by Humboldt in the last volume of his Cosmos. On no part of the lava he has been able to visit has M. Fouque noticed the smell of sulphureted hydrogen or sulphurous acid nor could he get lead paper blackened. The volatilized matters which cover the blocks of lava dissolved in water gave no precipitate with chloride of barium. M. Deville has explained that sulphur emanations follow the active state of a volcano in which chlorine appears to be the predominating electro negative element evolved. M. Fouque has distinguished four different varieties of fumaroles —dry, acid, alkaline and carbonic. The dry he finds on lava still incandescent; the acid, upon lava still above 400 deg. C.; the alkaline, at a lower temperature, but yet above 100 deg.; and the carbonic, at about the ordinary temperature. Hydrochlorate of ammonia he finds very general. It is present in the acid fumaroles, and also—but he states in very small quantity—in the dry, which he has said are situated on red hot lava. For those who have not read Humboldt, I may quote the explanation given by Deville, that the hydrochloric acid results from the decomposition of chloride of sodium by incandescent silicates in the presence of water.—*Chemical News.*

PRESSURE OF THE ATMOSPHERE.

It can readily be proved that the pressure of the atmosphere is about fifteen pounds on every square inch of the earth's surface; and if, starting from this well-known fact, you calculate the amount of pressure on any extended surface, you will be astonished at the result. For example: the pressure exerted by the atmosphere on the area on which a building stands is vastly greater than the whole weight of the building itself. The pressure on the whole surface of a man of ordinary stature is about sixteen tons; that on one square mile of surface is equal to over twenty-six millions of tons How great, then, must be the pressure on the whole surface of the globe! or, what is the same thing, how great is the intensity of that ever acting power which holds the atmosphere in its appointed place! Yet this force, immense as it is, is so delicately balanced by the sweet influences of the sunbeam that it does not so much as shake the aspen leaf or break the gossamer. If we believe no more than this, that the world was once created by God, what must be the power and wisdom of a being who could appoint these mighty forces and adjust them with such perfect precision? But if we also believe that these forces are direct emanations of divine power—that it is God himself who, with his own right hand, so to speak, holds the atmosphere in its place and appoints its bounds—then all Nature assumes a more glorious aspect, and we feel that we are indeed surrounded by the divine presence.

USE OF WASTE HEAT IN KILNS.

A North-fleet correspondent to the London Builder, who appears to be a practical man, says:

The gases arising from Portland cement, while it is burning in the kilns a great heat is obtained by consuming the gases, and then passing the same under a drying floor. When alight, the gases are like a rolling sea of fire, and this will travel a great distance before it requires a chimney-shaft—that is to say, if the flues are in a straight line, the heat from the gas will dry well for a distance of 120 ft. in length and 60 ft. in width. The kilns spoken of hold, when burnt, 150 casks. There is a greater improvement, however, which could be made: first, to let the heat work another set of flues while the men are taking off the stuff, and as soon as they have it off they could shut off another bay; or they might shut off nineteen flues out of twenty, and let the heat work up the one, which would be much better for men working on these hot flues. Secondly, by having a coke oven beside the furnace the gas from this would pass through the coke fire, and the coke from the oven would supply the furnace and much more heat. This plan of furnace would consume but a small quantity of coke, and could be applied to any kind of works for drying, and for material of any description; and if properly constructed would, he thinks, be preferable to any other.

HOW TO CLEAN QUICKSILVER.

There are few things which cause more trouble in saving gold than the impurities which often exist in the quicksilver used for amalgamating. These impurities sometimes consist of lead, sometimes of some greasy substance, and often of copper and other metals held in metallic or mineral form. To separate these impurities from the quicksilver has by many been found a difficult matter. We are assured that the cleaning or separating may be readily accomplished by retorting, but in doing so the mercury in the retort should be covered an inch deep with pulverized charcoal When this is done the vaporized mercury passes through the pulverized charcoal, which at once absorbs all the impurities and leaves the mercury clean. This method is extensively practiced in some of our mining countries, and is said never to fail in its results. We recommend it to our miners. If any of you doubt, you can easily make the test —*Colorado Miner's Register.*

WASTE OF METALS IN COIN.

The various coins which are in circulation are constantly wearing out, and with rapidity for which many persons would hardly be prepared. Parliament acknowledges the fact of this wear and tear, by voting ten thousand pounds annually to the mint to indemnify it for the loss to which it is exposed, on account of being obliged to receive silver coin, however worn, at its nominal value; of course it would be unfair that the last possessor of the coin should suffer from a diminished size to which thousands of others have contributed. It is curious that the smaller the coin the more rapid the deterioration. Thus, crown pieces are found to lose five per cent. in ten years, half crowns twelve per cent., shillings thirty per cent., and sixpences forty per cent. Gold coin—being more carefully handled and carried about, and rarely let loose in the pocket—does not wear out near so fast as silver.

ARTESIAN WELLS.

It has been observed that Artesian wells can only be successfully bored where porous strata are intercalated between impermeable ones. Where the intercalation is often repeated, several distinct sources of water may supply a single well. In that at Bruck, near Erlangen, there are three such sources; in that at Dieppe, seven; while the well at Dulmen, in Westphalia, is supplied by no less than thirteen strata, in a depth of 380 feet. The great distance from which the water of an Artesian well may be derived was well shown by a boring near Tours, from which, when the borer was withdrawn quantities of sand and small snail shells were ejected, which must, without doubt, have found their way there from the mountains of Auvergne, thirty miles distant. A curious proof of the occasional direct communication of Artesian borings with superficial accumulations of water was given by wells of this description at Bochum in Westphalia, and Elboeuf in France, in the water from both of which eels and small fish have at times been found.

TREATING PETROLEUM.—In order to deodorize petroleum and the products thereof, Mr. Bondy Azulay, of Rotherorthe, proposes to wash it with a saturated solution of chloride of lime, instead of treating it with the dry chloride as usual.

To find the solid contents of a cone, multiply one third of the area of the base by the height.

A steel wire may be made from an iron one by plunging it into melted cast iron.

On spontaneous combustion from shoddy, the Fire Marshal says:

Shoddy has occupied the attention of our community in various forms, but I have to claim for it a quality which will probably excite a fresh interest in it. There is no material, it is now ascertained, which is more liable to spontaneous combustion.—Some dealers claim that it is more dangerous than any other kind of merchandise. This may be true of some qualities of the article, but its danger or safety depends in a great measure on the manufacture. I have known shoddy to be pulled one day, and on the next to be on fire from spontaneous combustion. This arises from the fact of the manufacturer using too much oil with the rags, and then putting the shoddy into bags while hot. In such cases, combustion is almost sure to occur within a space of twenty-four hours. Accidents of this kind have taken place on several occasions with shoddy pulled by Messrs. Taylor & Son and W. Marshal, of Brooklyn. Warehousemen should make it a rule not to admit into their premises shoddy which has been recently pulled. If they do so they incur the risk of having them destroyed by fire.

WHAT IS A TON OF IRON.—At the recent sitting at Nisi Prius at Guildhall, London—Kingsford vs. Great Western Railway Co.—the plaintiff was an iron merchant in Leadenhall street, and he had made advances on iron to Mr. Sewell, a merchant in Nicholas lane, who stopped payment in July, 1863. At that time the plaintiff had an order from Mr. Sewell to deliver to him 250 tons of the Old Park Company's iron, which was lying at Wolverhampton. After some dispute, 250 tons, imperial weight, were delivered; but the plaintiff contended that, according to the usage of the iron trade, he was entitled to a tonage weight of 2,400 lbs. instead of 2,240 lbs., and the present action was to recover the quantity of iron which represented the difference between the two weights. The jury, without hearing the case to the end, returned a verdict for the defendant.

IMPORTANT NOTICE.

To ADVERTISERS.—Our paper offers a superior medium as an advertising agent, to all those who manufacture or sell machinery or appliances of any kind for Gas, Mining, Water, Sewerage, the production or purification of Oils, &c. &c., not so much on account of a wide-spread circulation, as from the fact that it goes directly to the hands of those who are constantly using and requiring machines and improvements for these branches, and who look hrough our columns for information where to procure them. The class of people who read our paper not only peruse our pages of reading matter, but read the advertisements as well, for the reason that they are directly interested in all things pertaining to their business. We therefore ask, with confidence that we can do them justice, all parties having machinery or improvements of any kind for either of the objects to which our paper is devoted, to send in their advertisements and avail themselves of these advantages. It will be observed that our terms for advertisers are very reasonable.

Fats and vegetable acids may be cooked in hot copper sauce pans without danger, since the metal is not attacked by them except when cold.

Rosin for violins should be melted with a little vinegar.

THE MINING & PETROLEUM STANDARD AND AMERICAN GAS-LIGHT JOURNAL, is published at Tribune Buildings, No. 1 Spruce st. on the 2d and 16th of every month, and is a recognized official organ of—

LIGHT, HEAT, MINING INTERESTS,

PETROLEUM, WATER-SUPPLY, AND

SCIENTIFIC SUBJECTS GENERALLY.

JAMES W. BRYANT, EDITOR AND PROPRIETOR.

W. S. SHERMAN, PUBLISHER.

PROF. C. ELTON BUCK, CONSULTING CHEMIST.

SUBSCRIPTION—Three dollars per annum in advance.

ADVERTISEMENTS.—One dollar per inch in column for each insertion. Large space or long time by special contract.—Payable in advance.

☞ All communications to be addressed to "The Editor," No 1 Spruce Street, New York.

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The Mining and Petroleum Standard

AND

AMERICAN GAS-LIGHT JOURNAL,

PUBLISHED ON 2D AND 16TH OF EVERY MONTH.

JAMES W. BRYANT, ... EDITOR.

FRIDAY, JUNE 2, 1865.

TO OUR PATRONS.

We have lately had several complaints that our paper has not been regularly received by our subscribers. We can assure them that we do not neglect to mail them. Our papers are wrapped and put in the Post Office under the eye of our publisher, and the city delivery is attended to with care. We would suggest to some of our city subscribers that directions be given to the clerks in the house, to place our journal upon the desk of the principal, as we are positive that delivery has been made at some places where the Journal has not reached the party to whom it was addressed. We will, with pleasure furnish any missing numbers, and parties wishing them had better apply soon, as our edition may be exhausted.

PEAT.

We have heretofore referred to the subject of introducing Peat as a fuel, and we hope before the winter arrives, that some of the numerous Peat-fields will be cut up and the article dried and ready for sale. The low price at which it can be furnished would allow many poor families to have a fire who could not afford it from coal or wood. There are some Peat deposits in New Jersey of a good quality, which is very accessible for working and transportation, and we do not know of any enterprise which, with so small a capital as would be required for this business, would pay better profits.

PROPOSALS FOR CONSTRUCTING A TUNNEL.—We invite attention to an advertisement in another column, by the Board of Public Work of Chicago, for proposals for constructing a tunnel under Chicago River. Sealed propositions will be received until the 19th of the present month.

THE GENUINE ARTICLE.

The San Francisco Mining Press, has the following:

Grave doubts have been expressed in certain quarters whether any such thing as a genuine article of kerosene oil can be produced from any oleaginous product of the rocks of California. Even a leading newspaper in this city has given publicity and its influence as a journal, to such an idea. The perceptions of such croakers might have been somewhat quieted, by witnessing an interesting exhibition which took place at the office of the National Petroleum Company, Government House, in this city. The exhibition took place in the presence of quite a number of gentlemen, among whom the press was fully represented. Two bottles of oil were placed upon the table, one of which had just been distilled by Mr. E. Benoist, from a lot of crude oil, which was recently received in this city from the claims of the Buena Vista Oil Company, in Tularo county; the other with Downer's best kerosene. Two lamps were filled, one from each of these bottles, and both lighted at once. The flame of each was apparently of the same color. The lamps burned the entire evening, and it was generally remarked by those present, that if any difference existed, it was in favor of the California article. The same experiments have been repeated in Los Angeles, with equal success, and with oil obtained from the neighborhood of that city. We consider the question definitely settled, that California can produce kerosene equal to the best that can be obtained from the East. The only question now remains is the quantity and cost; a few weeks, at the farthest, will fully test those points. If the results of the present borings are successful, oil stock will go up; and unless a steady nerve is maintained by our citizens, petroleum on the brain, of the most malignant type, will make its appearance in California.

In our list of the Trustees of the Philadelphia Gas Works, we omitted, by mistake, the name of Wm. H. Barnes, Esq. Since the publication of the list, E. H. Trotter, Esq., has resigned, and Wm. Elliot, Esq., was elected in his place.

A NEW BLASTING GUNPOWDER.

This powder is now largely employed in mining, says the Bulletin de la Societe Chimique. Its combustion is slow, but complete. The following analyses show why it is cheaper than ordinary powder:

	I.	II.
Soluble salts, . .	74·55	74·32
Nitrate of potash, .	56·22	56·23
Nitrate of soda, .	18·30	18 09
The treatment of sulphide of carbon produced:		
Dissolved sulphur, .	9·68	7·61
Carbon remaining, .	14·14	15·01
Moisture, . .	1·78	11

It is a coarse-grained powder, in which one part of potash nitre is replaced by nitrate of soda.

In the first instance, one part of nitrate of soda for one part of the nitrate of potash was used, but it was afterwards found best to employ a third of nitrate of soda.—BULLETIN DE LA SOCIETE CHIMIQUE.

The cube of the diameter of a sphere multiplied by ·5236 will give the solid contents.

Flints may be melted—we see it daily: but an ungrateful heart cannot—no, not by the strongest and noblest flame.

It is a question whether "golden opinions" are worth any more now than they were before the depreciation of the currency.

The following is the liquid said to have been employed by the confederate incendiary conspirators last fall:

At the Fifth Avenue Hotel, the three bottles containing the liquid were left corked, and when the room door was opened the following morning, the phosphorus had only just begun to smoke. Here it was that I procured two bottles of the liquid which was submitted to analysis. The preparation was found to be phosphorus, dissolved in sulphuret of carbon. I had some of the mixture prepared, and found that by dissolving two parts of phosphorus into four parts of sulphuret of carbon, the exact results were obtained. By saturating muslin or paper with it, I found that a blaze was produced in from four to eight minutes. The object of the incendiaries in employing this preparation was to combine certainty of results with facilities of escape. They calculated on its acting as a sort of fuse, which would give them the requisite time to make their escape out of the building without danger of detection. They were thus enabled to operate against twelve of our leading hotels and several hay barges within a comparatively short space of time.

CHINESE MINERS IN SHASTA COUNTY.—The Shasta Courier of March 18th, says:

In Lower Springs Mining District the Chinese have for a long time been excluded. Recently the miners having become disgusted with working for small pay, and with a limited supply of water to work with, held a meeting and voted that Chinamen might come into their district and work any claims they could buy, and no more. On last Monday another meeting was held, and the laws so amended as to admit Chinese to come in on equal terms with others. This is as it should be, and these diggings will now produce ounces where heretofore only dollars were extracted, and will add largely to the revenue of the county.

PETROLEUM REVIEW.

May 16,—The market is dull and much depressed sales have been made at 35 cts. for Crude, buyer and seller all next month; on the spot there is nothing doing, and prices are nominal at 36 cts. for Crude; 51 and 52 cts. for Refined in bond, and 70 and 72 cts. for do. Free.

May 17,—There has been no great desire to purchase, and in order to effect sales holders were compelled to lower their quotations at the close; prices are entirely nominal at 35 cts. for Crude, 51 and 52 cts. for Refined in bond, and 71 and 72 cts. for do. free; Naphtha is scarce and decidedly better; we quote at 48 and 50 cts.

May 18,—Receipts to day are 1,570 bbls. including 1,096 per Erie and 474 per Camden; the market has been decidedly more active for the future, but for parcels on the spot there is but little inquiry; prices have declined, and are heavy at the close; Crude is offered freely at 34 cts.; Refined in bond at 49 cts. and refined, free, 69 cts. all without buyers; we note sales of 2,500 bbls. Crude, buyer's option, from the 15th of June to the 15th of July, at 35 cts. and 500 bbls. Refined in bond, buyer all this month, at 49 cts.

May 19,—Receipts to day 1,563 bbls. including 813 per Erie and 750 per Camden; the market is less active and prices are easier; sales of 500 bbls. Crude, buyer next month at 34 cts. we quote on the spot at 34 and 34½ cts. for Crude; 48 cts. for Refined in bond and 68 cts. for Refined free.

May 20,—Receipts to-day are 1,045 bbls. including 617 bbls. per Erie, and 428 per Camden; the market still rules very dull; we hear of no sales; prices are nominal at 34 and 34½ cts. for Crude, 48 and 48½ for Refined in bond, and 68 and 68½ for do. free

May 22,—Receipts to-day are 1,359 bbls. including 1,141 per Erie, and 21 per Comden; the market is dull and prices are nominal at 34 and 34½ cts. for Crude; 48 and 49 cts. for Refined in bond; and 68 and 69 cts. for do. free.

May 25—Receipts to-day, 2,163 bbls. including 1,379 per Erie, and 784 per Camden; the market is firm at 35 cts. for Crude; 49 and 50 cts for Refined in bond, and 68 and 70 cts. for do. free; sales of 1,000 bbls. Crude, buyer's option, June, at 36 cts.

May 56.—Receipts to-day are 214 bbls. per Camden, the market is quiet, but prices are without special

change, we qu te Crude at 35 and 35¼ c's. Refined, in bond, 49 a d 50 cts and do. free at 69 a d 70 cts.

May 27,—The market is quiet, but pri es are without change. We quote at 35 and 35½ cts. for Crude; 49 an l 50 cts for Refined in barrels, and 69 and 70 cts for do. free.

May 29,—Rece'pts are 358 bbls. per Camden; the market is quiet at 35 and 35½ cts for Crude; 50 cts. for Refined in bond, and 68 and 70 cts. for do. free.

May 30,—Receipts to-day, per Erie, are 1,081 bbls. the market for all descriptions is firmer, but not active, sales at 35½ and 36 cts. for Crude, 50 and 51 cts. for Refined, in bond, and 69 and 70 cts. for do. free

June 1,—Receipts to-day, 669 bbls. including 246 per Erie and 423 per Camden, the market is quiet, but at the close prices are a shade firmer, we quote at 35 and 35½ cts for Crude, 49 and 50 cts. for Refined in bond, and 69 and 70 cts. for do free.

NEW YORK MINING EXCHANGE.

NEW YORK, June 1, 1865.

	Bid.	Asked		Bid.	Asked
Copper Stocks.			***Gold Stocks.***		
Aztec	7⅛	9	Benton	1	1⅛
Bedford	1	1⅛	Consol'd Gregory	25	28⅞
Boston	4⅛	5¾	Corydon	—	3
Caledonia, A. P.	10	12	Gunnel	3¾	4⅛
Canada	3¼	4	Great Western	—	8
Carp Lake	3	5	Hope	—	9
Central	65	70	Isaac's Harbor	⅜	⅞
Columbian	—	24	Manhattan	—	9
Copper Falls	34½	38	Mariposa	44	44¾
Clifton	—	81	Montana	⅜	1
Dacotah	—	5½	New York	2⅛	3
Derby	⅛	1⅛	N. Y. & Nova Scotia	⅛	1⅛
Douglass	—	—	Quartz Hill	9¾	10
Evergreen	18¾	20	Quicksilver M'g Co	81	82
Flint Steel River	12	13½	Rocky Mountain	—	10⅛
Frue	2¾	5	Smith & Parmelee	7	12
Grand Portage	—	—			
Hancock	12¾	14	***Coal Stocks.***		
Hamilton	—	6	American	98	100
Hilton	5	6	Ashburton	—	25
Hudson	1	2	Central	62	65
Huron	32	33	Cumberland	61	62
Indiana	8¾	9¼	Del. & Hud. Canal	206	208
Isle Royale	20	20½	*Hampshire & Balt.	104	110
Keweenaw	—	6	Pennsylvania	213	215
Knowlton	7	10			
Lafayette	1	2	***Lead Stocks.***		
Manhattan	—	—	Bucks County	⅝	⅞
Mendota	—	—	Clute	1⅛	1⅜
Merrimac	4¾	5⅛	Erie	—	20
Minnesota	33	37	Macomb	3¼	5
New York, A. P.	2	3⅛	Plancentia Bay	1¾	1⅞
N. J. Consolidated	4	4¾	Sussex	⅝	⅞
Norwich	—	6	Wallkill	3½	6
Ogima	5	6¼			
Ontonagon	3	4⅛	***Iron Stocks.***		
Penn	—	11½	Copake	8	10
Providence	1⅛		French Creek	⅞	1
Quincy	96¾		Teal Lake	4½	6
Reliance	1⅛				
Rockland	12⅛		***Miscellaneous.***		
Superior	8⅝		Rutland Marble	17	20
Sharon Consolidated	—		* *Ex. div.*		

PROPOSALS FOR CONSTRUCTING A TUNNEL UNDER CHICAGO RIVER.—OFFICE OF THE BOARD OF PUBLIC WORKS, CHICAGO, May 29, 1865.—Sealed proposals will be received at this office till 11 a. m., June 9th, for constructing under the south branch of Chicago River, on Washington street, a Tunnel with three passage-ways of stone and brick masonary with cone crete foundations.

The tunnel under this river is to consist of three passage-ways, the outside ones to be each 11 feet wide and 15 feet high, the middle one 10 feet wide and 15 feet high. The middle passage-way to terminate near the river on each side in stair-ways up to the street. Between the stair-ways and the ends of the covered portion of the Tunnel, the three passage-ways are to be reduced to one, varying from 24 to 18 feet in width, and from 20½ feet to 17⅞ feet in height. The whole length of the covered portion of the Tunnel is to be about 1,000 feet.

Plans and specification will be ready for examination at this office on and after the 12th of June. Proposals must be directed to the Board of Public Works, endorsed "Proposals for River Tunnel" The Board reserve the right to reject any or all bids, and no proposals will be accepted unless the bidder gives evidence satisfactory to the Board, that he is competent, reliable and responsible.

J. G. GINDELL,
FRED. LETZ,
O. J. ROSE,
Board of Public Works.

A SITUATION IS WANTED

As Superintendent of Gas Works, by an experienced and capable Gas Engineer, who will give satisfactory references as to his integrity and ability. He has had six years practical experience in the management of Coal and Resin Gas Works. Address,

☞ Address American Gas Light Journal, No. 1 Spruce street, N. Y. 126.

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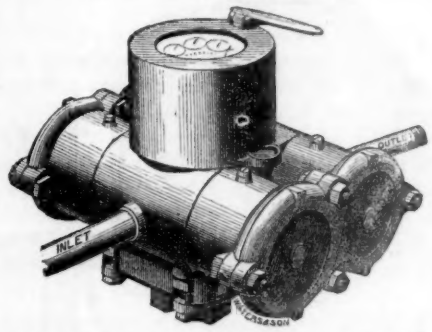

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This Meter is also used for the measurement of Oil —it combines

ACCURACY, SIMPLICITY, and REMARKABLE DURABILITY, with such ease and certainty of motion, as to offer no appreciable obstructions to the flow of water in the pipes to which it is connected, as it runs and registers upon three inches head, or when delivering the smallest stream. These qualities, with its low cost, have caused its extensive adoption by corporations and individuals, in many of our largest cities.

HENRY R. WORTHINGTON,
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New York and Philadelphia Ornamental Iron Works.

GARDEN ADORNMENTS,

VASES, FOUNTAINS, STATUARY, ARBORS, RUSTIC CHAIRS, SETTEES, TRELLISSES, &c.

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Wire, Cast Iron and Bronze Railings,

For enclosing Lots, Public Squares, &c.

☞ *Iron Furniture, Bedsteads, &c., &c.,*

The largest variety in the United States.

STABLE FIXTURES,

RACKS, MANGERS, &c.

No. 524 Broadway, New York,

Opposite St. Nicholas Hotel. [127

TO GAS COMPANIES.

For sale at the Island Works of the Gas Co., Washington, D. C.,

1 Retort House Roof, frame of iron, 141 feet long, 53 feet wide, with the slate attached.

All the Iron Work belonging to 28 benches of three Retorts each.

4 Washers, 18 inches diameter.

4 Purifiers of wrought iron, 5 feet by 11, with lids, &c.

2 Eight inch Slide Valves.

1 Five foot Station Meter, together with sundry connections, the whole forming a complete Gas Station in good order. For examination, apply to

GEO. A. MCILHENNY, Eng. Gas Works, Washington, D.C

For purchasing, apply to B. H. BARTOL, Philadelphia.

JOSEPH NASON & CO.,

No. 61 Beekman street, corner of Gold,

NEW YORK.

Manufacturers of WROUGHT IRON PIPES and Fittings for Steam, Gas and Water, Boiler Flues, Steam Boilers, Coils, Heaters, Evaporators, Pumps, Ventilating Machinery, and Apparatus for Warming Buildings by Steam and Hot Water.

OIL TUBING, CAST IRON DRIVING PIPE, Boring Tools, Oil Pumps, Sand Pumps, Stuffing Boxes, Tongs, Clamps, Swivels, Joints, &c. 131

Gas Fixtures and House Furnishing GOODS.

E. V. HAUGHWOUT & CO.,

No.'s 488, 490 and 492 Broadway,

Corner of Broome street, New York,

Manufacturers and dealers in

Chandeliers and Gas Fixtures.

Have a large and very choice assortment of GAS FIXTURES, which they offer at reduced prices, in view of the recent fall in gold. Their

Glass and Fire Gilt Chandeliers, are of entirely new designs,

And well worthy of attention by those who wish to purchase

☞ *Fine Fixtures for their Houses.*

They also offer a fine collection of

Real and Composition Bronze Clocks, Mantel Setts and Figures, Parian Statuary, Sterling Silver and Plated Ware, French, China, and English Stone Ware, Dinner, Tea & Toilet Setts, Glassware, Mirrors and Cornices.

☞ All Imported goods sold in conformity with the price of gold.

OFFICE OF WM. DAVIDSON,
INSPECTOR OF GAS METERS FOR THE STATE OF NEW YORK,

☞ At the above address. 127

WATER AND GAS PIPE.

The Boston Bituminized Pipe Company,

Are now manufacturing and prepared to take orders, for their PATENT PIPE, (from 2 to 12 inches in diamter,) as a substitute for Iron, Copper, Lead, &c., for the conveyance of WATER, GAS, SEWERAGE, &c. &c.

From the testimonials received, and the entire satisfaction it has given those having it in use, we feel warranted in claiming for this pipe over that of any other, the following advantages, viz.:

It is much CHEAPER—has great strength (it having been tested to 500 lbs. to the square inch,) combined with LIGHTNESS, costing less for transportation; the joints are easily made and perfectly tight; it does not expand or contract from different degrees of temperature, and is free from *CORROSION* or *CONCRETIONS* forming; does not impart any taste or injurious properties to water, and as far as anything can be said to be indestructible, we deem this to be.

As a GAS PIPE, we say it has no superior. The Lowell Gas Light Co., purchased and laid some of this Pipe last year, and have likewise subjected samples to a test of four month's duration in their dry lime purifiers, with the most satisfactory results, in fact establishing beyond a doubt, its perfect adaptation to the wants and requirements of Gas Companies, specimens of which, together with the statement of O. E. Cushing, Esq., Agent Lowell Gas Light Co., who made these experiments. I shall be pleased to show, and give all other needed information, by applying in person, or by letter, to JOHN L. WEBSTER, Treas.,

Boston Bituminized Pipe Co.,
127] No. 2 Pearl st. House, Boston.

A SITUATION WANTED AS SUPERINTENDENT OF OIL WORKS.

A gentleman with every qualification necessary to act as a Superintendent of Oil Works is desirous of procuring a position with some company as such. He has had long experience in the Oil Regions, and constant associations with oil men. The most satisfactory references as to integrity and ability can be given.

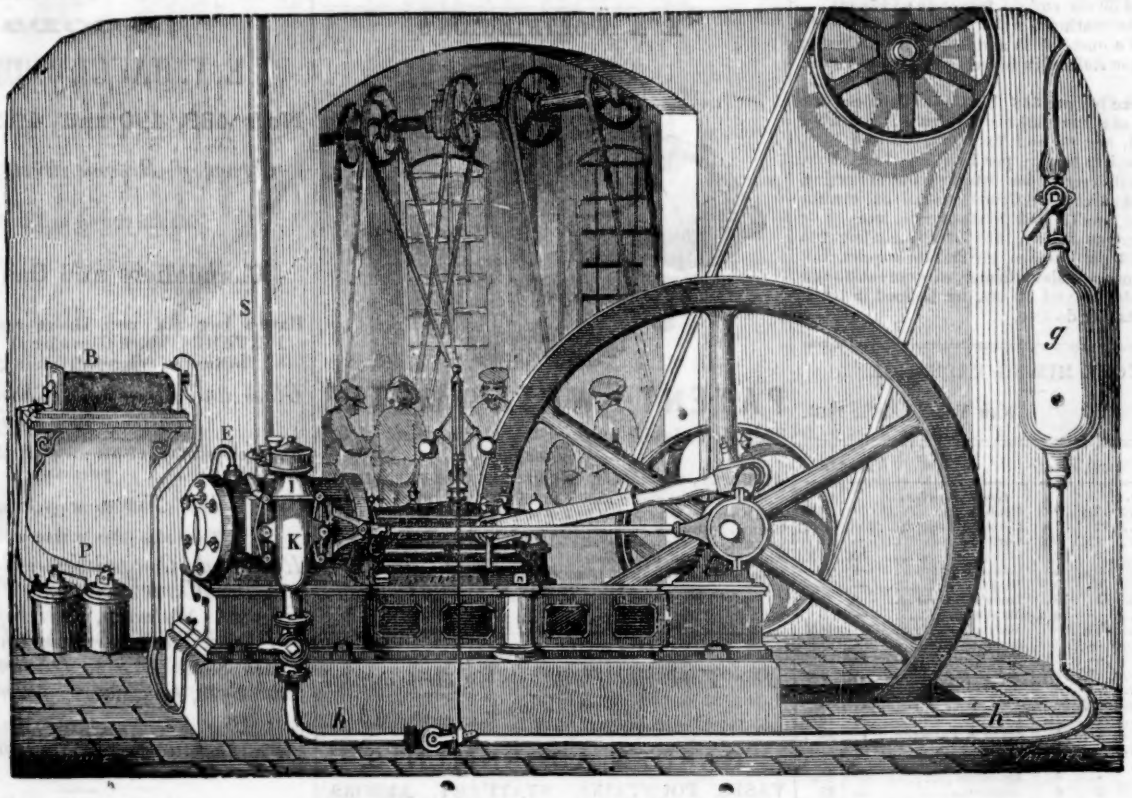
129 Address American Gas Light Journal.

TO GAS COMPANIES.

A Gas Engineer of thirteen years experience, desires a re-engagement. He refers, by permission, to

Chas. Roome, Esq., President Manhattan Gas Co.; F. T. Willis, Esq., President Savannah Gas Co.: Ambrose L. White, Esq., Engineer Metropolitan Gas Co.

Address, JAMES R. SMEDBERG,
131 186 Seventh Avenue, New York City.



MOTEUR—LENOIR.

LENOIR GAS ENGINE.

This is a horizontal engine, in which a piston, by a connecting rod drives a horizontal shaft.

The gas enters by the pipe "h" from the regulating reservoir "g," (made of vulcanized india rubber,) which regulates the feeding and the branches connected with the gas-pipe.

The tube, K, receives the gas conveyed by the pipe "h," and conducts it to the valve, which opens and closes alternately, by means of a rod moved by an eccentric wheel fastened to the end ot the shaft.

Two of Bunsen's piles, P, sufficient to produce the electricity are placed at a little distance from, and in communication with a Ruhmkorff electric apparatus, B. The electric current of this apparatus is conducted by means of insulated wires to the electricity distributor "m," placed on the front of the frame, while the current of electricity and its arrival at the inflammator, inserted at each end of the cylinder, is directed by the movement of the piston-rod, which, by an ingenious combination, impels a small movable slide before the distributor.

The burnt gas, after having performed its functions in the machine, escapes, by means of a valve, through a pipe, S, and the water designed to cool the interior of the cylinder enters through a double passage, by means of a pipe situated near the escape-valve, and goes out by the pipe, E.

A two horse and a half horse Engine are now in practical operation at the Dry Dock Iron Works, No. 435 East Tenth street, near East River, New York, where they are being manufactured, and those interested are invited to call and examine them.

THE LENOIR GAS ENGINE

Requires no Fire and makes no Smoke,

No Noise, no Dirt, and is thoroughly safe.

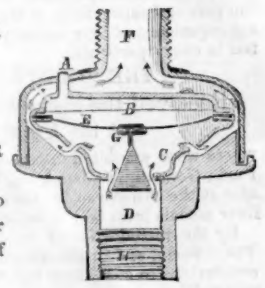
It is propelled by the expansion of Air, dilated by the combustion of Gas within the cylinder, ignited by the

ELECTRIC SPARK

NOTICE TO GAS COMPANIES AND GAS CONSUMERS

THOMPSON'S PATENT GAS CONTROLLER,

The only Self-Acting Gas Controller, Regulator, and Burner Combined which has ever been invented, or known to science.



THE PRINCIPLE UPON WHICH THE THOMPSON'S AUTOMATIC GAS CONTROLLER works is one well known to mechanics, and is simple in its operation.

Within the circumference of a small cylinder below the burner is placed a conical valve attached to a movable diaphragm. The diaphragm rises or falls as the pressure of gas from the pipe is lesser or greater, and the valve acts upon the valve-seat with such regularity of movement that in a difference of from five-tenths of an inch pressure to five inches the variation in flame is hardly perceptible.

The simplicity of its machinery and the nature of the material used in its construction insure its regular action and durability.

In consequence of the uniform quantity of gas which passes the Controller to the burner, there is no waste, and a steady, soft flame is produced, which is important to all who read, write, or work by gas light. The unsteady flickering blaze which invariably exists when the pressure of gas is beyond the requisition for consumption, has injured the sight of thousands who have been subjected to it.

For street lamps these Controllers are especially valuable, because the pressure varies materially during the night, and in consequence there is a waste of gas, and the light variable.

Improvements have lately been made in the mechanism of the Controller which makes them almost a perfect meter to each burner, and they are now offered to the public with more confidence than ever before.

Reference is permitted to the following named gentlemen—

Col. CHAS. ROOME, President Manhattan Gas Company, N. Y.
C. H. SANDS, Esq., President Metropolitan Gas Company, "
J. H. ADAM, Esq., President New York Gas Company, "
PETER COOPER, Esq., Cooper Institute, "
JOHN A. DUFF, Esq., Olympic Theatre, "

GEO. H. KITCHEN, Inspector of Gas Meters, N. Y.
A. L. BOGART, Esq., Gas Engineer.
Col. J. A. SABATTON, Engineer Manhattan Gas Company.
Col. A. J. WHITE, Engineer Metropolitan Gas Company.
J. K. SIMPSON, Esq., Engineer Cooper Institute.

Persons interested are invited to call at the Office, 111 Pearl street, where they can see the operation by pressure guage and test meters

M. L CALLENDAR, Agent
Office, 111 PEARL STREET.

THE AMERICAN METER CO

Organized under the General Manufacturing Laws of the State of New York.

SAMUEL DOWN, PRESIDENT. HENRY CARTWRIGHT, VICE PRESIDENT. RICHARD MERRIFIELD, SECRETARY AND TREASURER.

TRUSTEES.

SAMUEL DOWN, WILLIAM HOPPER, R. H. GRATZ, HENRY CARTWRIGHT, RICHARD MERRIFIELD.
THOMAS C. HOPPER, *Superintendent at Philadelphia.*

This Company is now prepared to furnish WET AND DRY GAS METERS, STATION METERS, GOVERNORS, PRESSURE INDICATORS & REGISTERS, SERVICE and METER COCKS, and all other articles in their line appertaining to the use of Gas-Works.

The combination of Mechanical and Scientific Skill, and the long experience of the several members of the Company, is a sure guarantee of durab ility, accuracy and excellence of workmanship. Orders addressed

AMERICAN METER COMPANY,

512 WEST TWENTY-SECOND STREET, NEW YORK,
ARCH AND TWENTY-SECOND STREETS, PHILADELPHIA,
No 23 WEST STREET, BOSTON, will meet with prompt attention.

HARRIS & BROTHER, PRACTICAL GAS METE MANUFACTURERS,

Continue, as heretofore, at their old Establishment, **No. 1117 CHERRY ST., PHILADELPHIA,** to Manufacture

WET AND DRY GAS METERS, and all kinds of GAS APPARATUS, and furnish all articles appertaining to the use of Gas Works. ☞OUR WORK WARRANTED—Satisfaction Guaranteed. Orders respectfully solicited, and promptly attended to, by
HARRIS & BRO., No. 1117 Cherry st., Phila.

Messrs. Harris & Brother, Philadelphia Gas Works, February 14, 1857.

Dear Sirs—I take great pleasure in stating that we have found your meters to register with entire correctness, and to be generally of very good quality; the number furnished by you to these works is over 5,000.
JOHN C. CRESSON, Engineer.

Office of the Gas Light Company of Augusta, Ga., March 6th, 1858.

This is to certify that having used meters manufactured by Messrs. Harris & Bro., for the last nine years, we do not hesitate to state they have given entire satisfaction in point of workmanship and accuracy of registration; they are surpassed by none, and equalled by few manufactories in the Union; we have used meters made by other establishments, but our preference is in favor of those made by Harris & Bro., of Philadelphia, Pa.
G. S. HOOKEY, Superintendent of the Gas Light Company of Augusta, Ga,

Messrs. Harris & Brother, Philadelphia. Philadelphia, March 4, 1858.

Gentlemen—We take great pleasure in bearing our testimony to the very superior character of the meters we have received from your establishment. We have always found the workmanship all we could desire, while the accuracy and reliability of their measurement have always been satisfactory. We have used meters made by other parties, and none have given as entire satisfaction as those received from you. We are, gentlemen, very truly, yours, BIRKINBINE & MEARS.

Messrs. Harris & Brother. March 14, 1857.

Gentlemen—For the last ten years we have used in the Philadelphia Gas Works, meters made in your factory and take pleasure in expressing my opinion a to their correctness. On several occasions I have taken your meters apart, and found the materials used in the manufacture of the same to be as fine quality as is used in those imported from Europe, or made by any of the manufacturers in the United States.
Respectfully Yours, GEORGE WIEGAND,
Inspector of GasFittings, Philadelphia Gas rks

GROVESTEEN & CO.,

PIANO-FORTE MANUFACTURERS.

499 BROADWAY, NEW YORK.

The attention of the public and the trade is invited to our New Scale Seven Octave Rosewood Piano-Fortes, which for volume and purity of one are unrivalled by any hitherto offered in this marked. They conain all the modern improvements, French, grand action, harp pedal, ron frame, over-strung bass, etc., and each instrument being made under the personal supervision of Mr. J. H. Grovesteen, who has had a practieal experience of over thirty years in their manufacture, is fully warranted in every particular.

THE "GROVESTEEN PIANO-FORTE"

Received the highest award of merit over all others at the Celebrated World's Fair!

where were exhibited instruments from the best makers of London, Paris, Germany, Philadelphia, Baltimore, Boston, and New York; and also at the American Institute for five successive years, the gold and ilver medals from both of which can be seen at our warerooms.

By the introduction of impro ements we make a still more perfect Piano-Forte, and by manufacturing largely, with a strictly cash system, are enabled to offer these instruments at a price which will preclude all compe.ition.

PRICES.

No. 1, Seven Octave, round corners, Rosewood Plain Case, $275.
No. 2, Seven Octave, round corners, Rosewood Heavy Moulding, $300
No 3, Seven Octave, round corners, Rosewood Louis XIV, style $325, a fac-simile of the accompaning cut.
TERMS—NET CASH, IN CURRENT FUNDS. Descriptive Circular sent free.

LILLIE'S

CELEBRATED

Chilled and Wrought Iron Safes,

WROUGHT IRON FIRE-PROOFS,

LOCKS AND VAULT DOORS.

These Fire-Proofs are manufactured to supply a demand for Security Against Fire, less expensive than my celebrated and superior Chilled and Wrought Iron Burglar and Fire-Proof Safes.

They furnish similar and equal security to the Safes generally manufactured in the different cities, but are SUPERIOR to them in their Fire-Proof qualities and durability, the iron being effectually protected from rust in any climate, and the Fire-proof not subject to lose its utility by age. This is an important advantage gained to the purchaser, as Safes often rust out and become worthless in two or three years.

To substantiate my position, those purchasing these Fire-Proofs are at liberty, by giving me due notice of time and place of trial, to test them by fire with any other Safe of the same size; and should they not prove superior, I will refund the money, or a new Fire-Proof, as the purchaser may decide.

LIST OF SIZES & PRICES OF WROUGHT IRON FIRE-PROOFS

	Outside.			Inside.			
No.	Height.	Width.	Depth.	Height.	Width.	Depth.	Price.
6	40	31	27	31	21	15	$150
5	34	21	26	24	21	14	125
4	31	27	25	22	18	13	110
3	30	24	24	21	15	12	100
2	28	22	23	20	14	12	75
1	24	19	20	17	11	10	50

Sample of Fire-Proof Safe at Office of the Am. Ad. Agency, 389 Broadway, N. Y.

PRICE LIST.

LILLIE'S CELEBRATED CHILLED & WROUGHT IRON SAFES.

BANK, FIRE, AND BURGLAR SAFES.
Folding Doors, D Lock.

	OUTSIDE.			INSIDE.			
No.	Height.	Width.	Depth.	Height.	Width.	Depth.	Price.
	In.	In.	In.	In.	In.	In.	
1	66	50	29	54⅛	39	18	$950
1½	59	50	26	48	39	15	800
2	53	44	27	42⅛	33	15	600

MERCANTILE F AND B SAFES.
Folding Doors and Monitor Locks.

3	50	42	27	40	32	16	$500
4	46	42	27	36	32	16	450
4½	38	46	27	28	36	16	450
5	42	38	27	31½	27½	15	350

Single Doors and M. Lock.

6	38	35	26	27⅛	23½	15	$250
7	34	31	26	24	21	14	200
8	31	28	24	21	18	13	175
9	30	24	24	21	15	12	140
10	26	22	22	19⅛	18½	12	120
11	24	20	18	17	17	10	100

HOUSE SAFES

SIDE BOARD		$600
DINING ROOM		350
PANTRY (No. 1)		275
PANTRY (No 2)		150
DUODECAGON BANK LOCK		100
MONITOR SAFE	do.	50
SAFE	do.	10

NATIONAL BANK SAFES,
With 2 Inside Burglars and 1 D and 2 M Locks.

	OUTSIDE.			INSIDE.			
No.	Height.			Hei	Width.	Depth.	Price.
	In.			In.	In.	In.	
1	68			55	39	18	$1,200
2	61			48	39	18	1,050
3	57			42⅛	33	18	900

BANK VAULT BURGLAR SAFES,
With Folding Doors and D Lock.

0	68	53	27	64	48	20	$1,000
0½	61	53	27	55	46	20	800
1	57	47	27	49	40	20	600

BANK VAULT BURGLAR SAFES,
Single Doors and D Lock.

2	53	32	26	49	28		
3	42	36	22	38	32	19	
4	36	31	20	32	27		0
5	30	24	18	26	20	14	

BANK VAULT DOORS AND FRAMES,
D and S Lock.

No.	Height clear.	Width clear.	Depth adjustable.	Price.	Weight.
	In.	In.	In.		
1	72	27	20	$400	3,000
2	72	27	20	275	1,500

Orders received and filled at net cash prices, by the AMERICAN ADVERTISING AGENCY, 389 Broadway, New York. All Safes shipped from Troy free of cartage.

Business Depart., E. ALVORD. *Corresponding Depart.*, FOWLER AND WE

WEST'S IMPROVED PUMP.

Anti-Freezing, Double-Acting, Forcing, and Lifting

These Pumps have now been in general use a number of years, and give better satisfaction than any other, and are recommended as

THE BEST!

by CAPTAIN ERICSSON and other eminent engineers. We can refer to thousands using them, a guarantee that all will recommend them. They are more simple in construction, and work easie and cost less than all others.

"Our readers will find the double acting, improved pump of J. D. West & Co., one of the best in the market. It is very simple, works to a charm, so that any child may use it; throws a steady, continuous stream, and does not freeze in the coldest exposures, and is unusually cheap. We say this knowingly, and give the testimony of our own accord, without the knowledge or request of the proprietor."—*New York Evening Post, July 1st*, 1863.

"J. D, WEST & Co.: We are pleased to state that the Pumps we had of you about a year ago, have been in constant use, twelve hours each day, and raise for the use of our woolen factory, about 130 gallons per minute. They work with but little power, compared with pumps we have used before, and do not get out of repair, and are satisfactory in all respects.

"DUNLAP MANUFACTURING CO."

Solon Robinson to the Farmers' Club.

Jan. 23.

"No farmer who owns a well or cistern can possibly afford to be without an iron pump. It should be a once a suction and force pump—a perfect little fire engine—such a one known as 'West's Improved Pump.' I speak of this Pump because I happen to know it....to be very simple, durable, powerful and cheap, and it don't freeze up, nor get out of order once a year....I know this, and think I may be doing the farmers good by speaking of it....A boy ten years old can work it, and throw a continuous inch-and-a-quarter stream....It can be made to work in deep wells as well as ni shallow ones."

"GREAT NECK, L. I., 1860.

"I have used this Pump for one summer and winter, exposed to the northwest wind coming over Long Island Sound, being the coldest possible exposure, and at no time did it freeze, nor were we unable at any time to pump water with great ease.

H. B. MC ILVAIN."

"The undersigned having to use "West's Improved Pumps," cheerfully recommend them as simple, durable, and powerful in raising and throwing water, and for their ease of action, security against frost, and low price, we believe them superior to all others.

"WARREN LELAND, Met. Hotel, N. Y.
"J. W. POMEROY, Yonkers, N. Y.
"JOHN MESSEREAU, N. Y.
"DOMINICK LAWRENCE, Westchester."

From the New York Observer.

"We have had in use for months past one of West's Pumps, which has given us more satisfaction as a force and lifting pump than any we have ever used. It is one of great power, and well adapted for ship's decks, mines, factories, greenhouses, graperies, etc. *The Mining Chronicle and Railway Journal* says: 'It is recommended for its extreme simplicity of construction, great strength, and consequent durability and cheapness of repair. There is no stuffing-box—the pressure being held by a cup packing, like that upon the working-piston, working in a cylinder, fitted for the purpose within the upper air chamber—which we think a great improvement, as stuffing is so liable to be deranged and leak under strong pressure, to say nothing of the loss by friction incident thereto. It has also two air-chambers; thus the action of the valve is cushioned upon both sides by air—preventing water-hammer and vacuum-thump. The valves are very accessible and simply and cheaply repaired. They work much easier than any pump we have ever seen; the 4-inch cylinder being worked by children in wells 100 feet deep, and as they are extremely cheap, as well as simple and strong, we freely recommend them.'"

"CAMBRIDGE MINE, N. C., June 15, 1863.

"J. D. WEST & Co—Gents: The Pump which I ordered for our mine is received, and put to work in our underlay shaft, which we are sinking. We find that one man will, with ease, lift 50 gallons per minute. We lifted in three and a half hours all the water in the shaft, which measures seven by twelve feet and thirty feet deep, and it was full when we commenced. It answers our expectations in every respect, and our workmen are highly pleased with it. It will do great service with but trifling expense for repairs.

"Yours, respectfully, BURR HIGGINS."

"This may certify, that I have been using, at my manufactory, for the last four years, 'West's Improved Pumps.' I now have in use three of said Pumps, one of which is kept constantly at work, 24 hours of each day (save Sundays), and has been running for the past two years. I pronounce them, unhesitatingly, the best Pumps that have been brought to my notice, having used many others previously. They are simple in their construction, and not easily disarranged.

"N. Y., Oct. 10, 1859. JAS. A. WEBB."

We have plenty more such certificates, but think these are enough. For Pumps, Hose, Pipe, etc., address or call upon

J. D. WEST & CO., 179 Broadway, New York.

Orders may be sent through the AMERICAN ADVERTISING AGENCY, 389 Broadway

AMALGAM BELLS,
AMALGAM BELLS,
AMALGAM BELLS,
AMALGAM BELLS

At prices within the reach of every Church, School, Cemetery, Factory, or Farm in the land. Their use throughout the United States and Canadas for the past six years has proven them to combine most valuable qualities. Among which are TONE, STRENGTH, SONOROUSNESS, and DURABILITY OF VIBRATION, unequalled by any other manufacture. Sizes from 15 to 5,000 lbs., costing TWO-THIRDS LESS than other metal, or 25 cents per pound, at which price I warrant them twelve months. Old bell metal taken in exchange, or bought for cash. Send for a circular to the manufacturer,

JOHN B. ROBINSON,
No. 86 DEY STREET, NEW YORK.

List of Academy, Steamboat, Fire-alarm, and Church Bells, with particulars as to Weight, Sizes, Price of Bells, Hangings, etc.

Weight of Bells.	Diameter.	Price of Bells without Hangings.	Price of Patent Hangings.	Price of Bell and Hangings complete.
225 lbs.	26 inches.	$56 00	$15 00	$71 00
275 "	42	69 00	18 00	87 00
375	36	94 00	22 00	116 00
450	34	112 00	25 00	137 00
600	02	150 00	30 00	180 00
750	39	188 00	35 00	225 00
1,000	64	250 00	42 00	292 00
1,200	48	300 00	45 00	345 00
1,400	50	350 00	50 00	400 00
1,600	52	400 00	54 00	454 00
1,800	55	450 00	60 00	510 00
2,000	58	500 00	62 00	562 00
2,500	60	625 00	72 00	697 00
3,000	63	750 00	85 00	835 00
3,500	66	875 00	87 00	962 00
4,000	69	1,000 00	100 00	1,100 00
4,500	72	1,125 00	113 00	1,238 00
5,000	75	1,250 00	125 00	1,375 00

List of Prices, Weights, and Sizes of Farm, Hotel, Steamboat, School-house, Shop, and Factory Bell.

These Bells are fitted with Yoke, Standard's Crank and Bolt, complete for use.

Weight of Bell and Hangings.	Diameter.	Cost of Bell and Hangings complete.
15 lbs.	7 inches.	$3 75
20	8¼	5 00
35	10	8 75
50	12	12 50
75	16	18 75
100	18	25 00
150	20	37 50
200	22	50 00
250	24	62 50

Larger Sizes made to Order at 25 cents per pound.

Guarantee.—All Bells sold at the above prices WARRANTED against breakage by fair ringing, for TWELVE MONTHS from time of purchasing. Should one fail, a new bell will be given by returning the broken one.

Orders may be sent through the AMERICAN ADVERTISING AGENCY, 389 Broadway, New York.

In case a Bell breaks after the expiration of the Warrantee, I allow HALF PRICE for the old metal. JOHN B. ROBINSON, 86 Dey Street, N. Y.

PRINCE'S METALLIC PAINT,
AN INDESTRUCTIBLE COATING FOR
IRON, TIN, and WOOD.

It consists of seventy-two parts Oxide of Iron, and twenty-eight parts Cement Lime Stone in the one hundred pounds.

It has much more body than red or white lead. It is warranted perfectly water and fire-proof and to withstand a greater heat on metals, without scaling, than any other paint in use.

It is a perfect cover for all kinds of iron, tin, or wood-work, out-houses, and canvas coverings. It prevents and arrests the corrosion of metals, and is not affected by the action of salt, gases, acids or ammonia.

It hardens under water, as has been fully demonstrated by its application to gas-holders, by many of the largest gas companies in the United States; which companies having thoroughly tested its properties as herein claimed, pronounce in its favor over any other paints in the market, even though sold at double its price.

As a coating for patterns of iron or wood, when mixed with shellac, it is much superior to beeswax, oil, or shellac alone, as has been proven at the large foundries in the country.

For patching boilers and making joints, it is considered superior to red lead, or any other preparation.

For cleaning metals it takes the place of crocus, rouge, and emery, being better and cheaper.

This Paint requires no more oil than dry lead or zinc, and much less than the ordinary mineral paints. It is free from any waste, and possesses a spreading and covering power unequaled.

Terms, by the Barrel or Half Barrel, Five Cents per Pound.

A liberal discount made to parties purchasing by the ton.

A Barrel or Ton will be forwarded to any gas companies desirous of testing its qualities, for which there will be no charge if it does not give entire satisfaction as being the cheapest and most durable of all other Paints in the market.

Also, Prince's Imperial Black Paint, and Prince's Protoxide of Iron.

DANIEL SLOAN, General Agent,
115 LIBERTY STREET, NEW YORK.

Local Agent—CALVIN GAY, 29 Doane st., Boston.

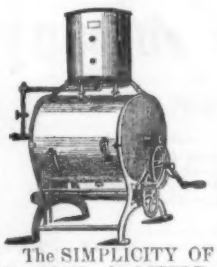
GEO. H. KITCHEN & CO.,
NEW PATENT
GAS APPARATUS
For Country Residences, Public Buildings, &c.,
FROM $300 UPWARDS.
EVERY DESCRIPTION OF GAS FIXTURES.
Gas Fitting in all its branches.
561 Broadway,
NEW YORK.

SCHMIDLIN & DRISCOLL,
MANUFACTURERS OF
HALL, STREET & CHURCH LANTERNS,
Show Window and Street Lamp Reflectors,
135 Mercer Street,
NEW YORK.

S. FULTON & CO.,
(Successors to Colwell & Co.)
Manufacturers of
PIG IRON & CAST IRON GAS & WATER PIPES.
Also, Heavy & Light Castings of every description, No. 207 North Water street and 206 North Wharves, Philadelphia.
SAMUEL FULTON, THEO. TREWENDT

POOLE & HUNT,
BALTIMORE, MD.,
are prepared to execute orders for
GAS-HOLDERS,
IRON-ROOF FRAMING,
And all other descriptions of
Iron Work for Gas-Works, Water-Pipes, and Heavy Castings, and Machinery generally.

DRAKE'S
PATENT
AUTOMATIC GAS MACHINE.



THIS MACHINE, which has been in constant use for more than two years, is now acknowledged to be the

Most Convenient, Simple, and Efficient Method

OF LIGHTING BUILDINGS OF ALL KINDS, out of the reach of regular gas-works, ever brought to public notice.

The SIMPLICITY OF THE APPARATUS, its ENTIRE FREEDOM FROM DANGER, the LITTLE ATTENTION REQUIRED, the EASE WITH WHICH IT IS MANAGED, and THE CHEAPNESS and SUPERIORITY OF THE LIGHT, has gained for it the favorable opinion of those acquainted with its merits.

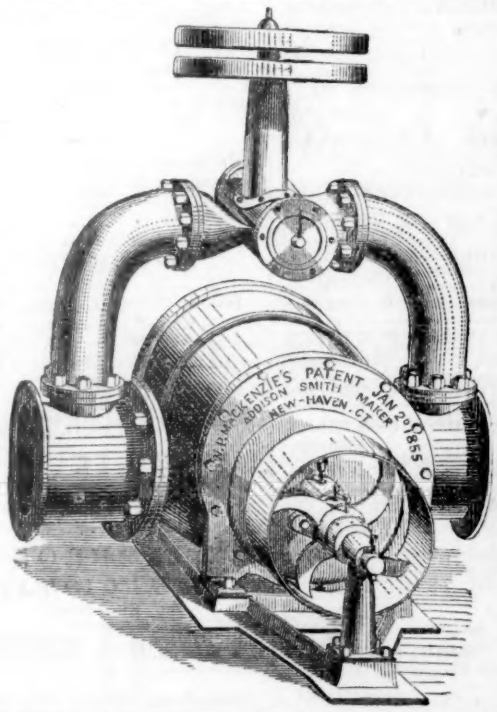
The Machine takes up but little room; no disagreeable odor is experienced in its use; no fire is applied to the apparatus at all; it can be attached to ordinary gas-pipes used for coal-gas, and is burned through the same kind of fixtures.

These Machines are manufactured in Boston, by the AU OMATIC GAS-MACHINE CO., and are for sale at their Store, 78 Washington s eet, Boston, and also at the Agency, MITCHELL, VANCE & CO.'s, No. 620 Broadway, New York

For further particulars, address—

MITCHELL, VANCE & CO.,
620 BROADWAY, NEW YORK CITY.

SMITH & SAYRE.
Sole Proprietors and Manufacturers of



THMACKNZI PATNT GAS EXHAUSTER AND COMPENSATOR.

They are made to pass from 4,000 to 150,000 cubic feet of gas per hour; will increase the tion and illuminating power of the gas, and add very much to the durability of the retorts, e clay or iron. The Compensator obviates entirely the necessity of water-joints, is compact, dur cleanly, not liable to get out of order, self-acting, quiet, and certain in its operation.

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The Blower is a Force Blast machine, durably built, and can be driven with one-third the p e required to drive the ordinary Fan. The Cupolas are manufactured in sizes to melt from 1 ton to 20 tons per hour, will save one quarter of the time required by the old style Cupola, and 33 per cent. uel. Address SMITH & SAYRE, 458 Broadway, New York.

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Manufacture Wrought Iron Welded Tubes for Gas, Steam or Water; Lap-Welded Boiler Flues, GALVANIZED WROUGHT IRON TUBES,
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In all, 8,625 feet (linear), and large water powers and mill sites

Capital issued, 40 000 shares, at $10 per share.
A limited number of shares are offered at the low SUBSCRIPTION PRICE (having been reserved for their customers), by

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SAFEST AND CHEAPEST SYSTEM OF INSURANCE.

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172 BROADWAY,
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The Policies entitled to participate receive 75 per cent. of net Profits.

Insures Buildings, Merchandise, Furniture, Rents, Leases, against loss or damage by FIRE, and MARINE RISKS on LAKES, RIVERS and CANALS.

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CASH CAPITAL, $200,000. CHARTERED 1824.

The insured receive seventy-five per cent. of the net profits annually, without incurring any liability. When preferred, a discount will be made in lieu of participation in profits.

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MANUFACTURER OF
WET & DRY GAS METERS,
STATION, SHOW, & EXPERIMENTAL METERS,
Photometers, Pressure Registers, Indicators, and Gauges, Governors Meter Provers, Centre Seals, Fluid Gauges, &c.
GAS APPARATUS
Of the most reliable and approved construction manufactured and on hand at the
UNION GAS METER WORKS.

PUTNAM'S CLOTHES WRINGER.
IT IS THE ONLY RELIABLE
Self-Adjusting Wringer.

No Wood-work to Swell or Split. No Thumb-screws to get out of order. Warranted with or without Cog wheels.

It took the First Premium at Fifty-seven State and County Fairs in 1863, and nearly double that number in 1864, and is, without an exception, the *best* Wringer ever made. Patented in the United States, England, Canada, and Australia. Agents wanted in every town, and in all parts of the world. Energetic agents can make from $3 to $10 per day.

WHAT EVERYBODY KNOWS, VIZ.:

That Iron well galvanized *will not rust.*
That a *simple* machine is better than a complicated one.
That a Wringer should be *self-adjusting, durable, and efficient.*
That thumb-screws and fastenings cause *delay* and *trouble* to regulate and keep in order.
That wood soaked in water will *swell, shrink,* and *split.*
That wood-bearings for the shaft to run in *will wear out.*
That the Putnam Wringer, with or without cog-wheels, will *not tear the clothes.*
That cog-wheel regulators are not essential.
That the Putnam Wringer has *all* the advantages, and *not one* of the disadvantages above named.
That all who have tried it pronounce it the *best* Wringer ever made.
That it will wring a thread or a bed-quilt *without alteration.*

We might fill the paper with testimonials, but insert only a few to convince the skeptical, if such there be; and we say to all, *test* Putnam Wringer. Test it *thoroughly* with *any* and *all* others, and if not entirely satisfactory, return it

PUTNAM MANUFACTURING CO.—*Gentlemen:* I know from practical experience that iron well galvanized with zinc will not oxydize or rust one particle. The Putnam Wringer is as near perfect as possible, and I can cheerfully recommend it to be the best in use. Respectfully yours,
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Many years' experience in the galvanizing business enables me to indorse the above statement in *all particulars.*
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NEW YORK, *January*, 1864.—We have tested Putnam's Clothes Wringer by practical working, and know that it will do. It is cheap; it is simple; it requires no room, whether at work or at rest; a child can operate it; it does its duty thoroughly; it saves time, and it saves wear and tear. We earnestly advise all who have *much* washing to do, with all intelligent persons who have *any*, to buy this Wringer. It will pay for itself in a year at most. HORACE GREELEY.

PRICES—$8, $9, and $10.
Sample Wringers sent, express paid, on receipt of price.
Manufactured and sold, wholesale and retail, by
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STOCKS, BONDS,
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Bought & Sold.
ON COMMISSION,

Carrington & Co.'s
GENERAL
PURCHASING
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In Connection with all the Expresses,
No. 30 Broadway,
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Estabished 1854.

Purchases to order ANY article wanted from New York, (or from Europe,) for ladies' or gentlemen's use or wear,—comfort or luxury—from a cameo to a cashmere—a scal-ring to a steam-engine.

Goods purchased at current City prices, and forwarded by Express, or as directed.

Commission, Five Per Cent.

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SPECIAL CIRCULAR.

The Adams Express Company, appreciating the need of a capable medium connecting with the various Express Lines, through which personal and other orders for goods from this city, can be satisfactorily supplied, do recognize CARRINGTON & CO.'S GENERAL PURCHASING AGENCY as such a medium for filling orders for every description of goods wanted from New York, and commend it to the attention of the public, and of our general and local agents, recommending our agents to extend to it all reasonable aid, by facilitating the distribution of its cards and circulars, and making known the advantages it affords.

ADAMS EXPRESS CO.
By W. B. DINSMORE, Prest.
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We cheerfully concur in the above recommendation of the Adams Express Company.
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The Greatest Improvement yet in the Sewing Machine Art!

A CURIOSITY WORTH SEEING!

Please send for circular with sample of sewing.

These Improved Machines save ONE HUNDRED PER CENT. of thread and silk, and make the LOCK-STITCH alike on both sides.

They require no instruction to operate perfectly, except "the printed directions."

No change in sewing from one kind of goods to another.

And no taking apart to clean or oil.

Our NEW MANUFACTORY is now complete, with all its machinery and tools entirely new, and is already rapidly turning out Machines which for BEAUTY and PERFECTION of FINISH are not surpassed by any manufacture in the world.

N. B.—Should any Machine prove unsatisfactory, it can be returned and money refunded.

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Sewer Pipes extensively used in Brooklyn, and now introduced in New York, Jersey City, Newark, Hartford, Albany, and other localities, from 8 to 24 inches in calibre.

Water Pipes, lined and coated with Cement mortar, ready for laying and back filling, and can be tapped like cast-iron pipes, which they excel in durability, discharge, and economy.

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WARRANTED
Not to corrode tin, iron, brass, zinc, or drum-metal.
To be less injurious to wet meters that water.
Not to freeze at 20 degrees below zero, Fah.
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Meters once filled with it requiring no further attention whatever for years.
The summer is the proper time to fill them.
SIX YEARS OF SUCCESS!
Five years in general use in works using it, to the exclusion of all other fluid, and driving the dry meter out of use, enables us to recommend our patent with perfect confidence.
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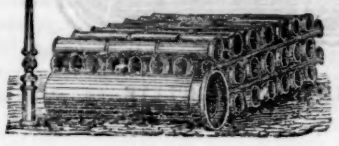

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Many Village Gas Companies can be referred to.

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And Contractor for Coal or Oil Gas-Works.
Estimates given for Gas-Works, Gas-Holders, or any Gas Apparatus.
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To Manufacturers of Petroleum Gas.
For sale, Parrish's Patent Gas and Air Mixer, adapted to all works using Petroleum or other oils, by which rich Petroleum Gas is mixed, after it leaves the holder, with a proper proportion of air, giving it the greatest illuminating power, without smoke, through any burners. The apparatus being attached to the outlet pipe, requires no alteration of the works.

Apply at the Gas-Works of St. Nicholas Hotel, No. 63 Mercer st., N. Y., where one can be seen in operation; or address D. Parrish, Jr., St. Nicholas Hotel, New York city, or No. 1416 Arch street, Philadelphia.

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Filling Wet Gas-Meters
Cheaper than Whisky Or any OTHER SUBSTANCE,
We have furnished the Cincinnati Gas and Coke Company 300 barrels Glycerin, for filling their wet meters, and are now ready to supply other Gas Companies at the lowest cash prices.
We warrant our Glycerin not to corrode the meter metal, nor to freeze at the lowest ordinary temperature, nor to evaporate.
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Patented February 14th, 1860.
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This Machine is constructed on entirely new principles of mechanism, possessing many rare and valuable improvements, having been examined by the most profound experts, and pronounced to be SIMPLICITY and PERFECTION COMBINED.

It has a straight needle, perpendicular action, makes the LOCK or SHUTTLE STITCH, which will NEITHER RIP nor RAVEL, and is alike on both sides; performs perfect sewing on every description of material, from Leather o the finest Nansook Muslin, with cotton, linen, or silk thread, from the coarsest to the finest numbert.

Having neither CAM nor COG WHEEL, and the least possible friction, it runs as smooth as glass, and is

Emphatically a Noiseless Machine!

PRICE OF MACHINES,
COMPLETE:
No. 1, Family Machine, with Hemmer, Feller, Gauge, Braider, & Corder, complete. - - - $60
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No. 3. Large Manufacturing, with Extension Table, $85
No 3. Large Manufacturing, for Leather, with Rolling Foot and Oil Cup, 100

One-half hour's instructions is sufficient to enable any person to work this Machine to their entire satisfaction.

Agents Wanted in all Towns in the United States, where Agents are not already established. Also, for Cuba, Mexico, Central and South America, to whom a liberal discount will be given
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Conically Slotted Solid Wood Sieves
FOR GAS PURIFIERS.
The Conically Slotted Solid Wood Tray or sieve was patented 21st October, 1862, and all persons are cautioned against purchasing them of any other person except the subscriber. The following companies are now using these trays.
Manhattan, New York,
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And numerous others
Orders received by mail or otherwise.
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Gas Retorts, Tiles and Fire-Brick of all shapes and sizes. Fire Mortar, Clay, and Sand. Articles of every description made to order at the shortest notice. B. KREISCHER.

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JOHN NEWKUMET,
Manufacturer of all kinds of Fire-Brick, Gas-House Tiles, to suit all the different plans in use. Clay Retorts and Dentists' Muffles. Orders filled at short notice

WEST'S IMPROVED PUMPS, the most Simple, Durable, and Powerful, and the Cheapest in use.
J. D. WEST & CO.,
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WORTHINGTON'S Steam Pumps, extensively used by Gas-Light Companies. For Sale at greatly Reduced Prices.
Also, a new and highly successful Pump, driven by water pressure, requiring no attention or repairs, and the most economical water motor yet constructed.
Patent GATES, for Water and Steam-stops.
HENRY R. WORTHINGTON,
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It is entirely noiseless.
A patented device prevents it being turned backward.
The needle cannot be set wrong.
It received the Gold Medal of the American stitute in 1863.
Send for a circular containing full information, notices from the press, testimonials from those using the machine, &c.
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THE UNDERSIGNED DESIRES TO undertake the supervision of several small Gas-works, to visit and examine them as often as may be necessary; to obtain and inspect their coal, castings, fire-brick, and other materials; and to manage their general business in such a manner that they shall be under such supervision as is now attainable in large works, at much increased cost. Also, to advise as general Consulting Engineer and expert in practical chemistry.
CHAS. M. CRESSON,
Late Asst. Engineer of the Philadelphia Gas-works
417 Walnut st., Philadelphia.

DON'T FAIL TO READ THIS!

COFFEE

COFFEE! COFFEE!

EAST INDIA COFFEE CO.

154 Reade St.,

(Three doors from Greenwich St.,) NEW YORK,
Call universal attention to their
KENT'S
East India Coffee,

KENT'S EAST INDIA COFFEE
Has all the flavor of OLD GOVERNMENT JAVA, and is but half the price; and also that

KENT'S EAST INDIA COFFEE
has twice the strength of Java, or any other Coffee whatever and wherever used by our first-class hotels and steamboats—the stewards say there is a saving of 50 per cent.

KENT'S EAST INDIA COFFEE
is the most healthy beverage known, and is very nutritious. The weak and infirm may use it at all times with impunity. The wife of the Rev. W. Eaves, local minister of the M. E. Church, Jersey City, who has not been able to use any coffee for fifteen years, can use

KENT'S EAST INDIA COFFEE
three times a day without injury, it being entirely free from those properties that produce a nervous excitement.

Dr. JAMES BOYLE, of 156 CHAMBERS ST., says: "I have never known any Coffee so healthful, nutritious, and free from all injurious qualities as

KENT'S EAST INDIA COFFEE.
I advise my patients to drink it universally, even those to whom I have hitherto prohibited the use of Coffee.

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KENT'S EAST INDIA COFFEE,
and would not be without it on any account.

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KENT'S EAST INDIA COFFEE,
"I have used it nearly a year in my family, and find it produces no ache of the head or nervous irritation, as in the case of all other Coffees. It is exceedingly pleasant, and I cordially recommend it to all clergymen and their families."

KENT'S EAST INDIA COFFEE
is used daily by the families of Bishop Ames, Bishop Baker, Bishop James, and many of the most distinguished clergymen and professional men in the country."

Beware of Counterfeits!
and be sure that packages are labeled
KENT'S EAST INDIA COFFEE,
154 Reade Street, New York,
as there are numerous counterfeits afloat under the name of "Genuine East India Coffee," "Original East India Coffee," etc. put forth by imposters to deceive the unwary.

In 1 lb. packages, and in boxes of 36, 60, and 100 lbs., for Grocers and large Consumers. Sold by Grocers *generally.*

Orders from Country Grocers solicited, to whom a very liberal discount will be made.

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The Am. Adv. Agency, 308 Broadway, N. Y., will receive orders for the above named Coffee.

Business Dep., E. ALVORD. | *Corresp. Dep.,* FOWL & WELLS.

Glycerin for Gas Meters.

This article is superior to any fluid ever before used for Wet Meters, and we cannot better set forth its advantages than by giving the following letter from the Superintendent of the Covington Gas Co. The superiority of our Glycerin over all others in the market, for this purpose, is admitted by every Company that has used it. We have sold, the past winter, to the Cincinnati Gas-Light and Coke Co.; to the Gas Companies of Covington, Ky.; Dayton, Springfield, Portsmouth, Urbana, and Piqua, Ohio Richmond, Ind., and Buffalo, N. Y., to whom we refer.

Glycerin is much cheaper than Whisky is now, or likely to be areafter, and not evaporating, greatly increases the economy of vs use.

OFFICE OF THE COVINGTON GAS-LIGHT CO.
COVINGTON, KY., Feb. 18, 1864.

MESSRS. W. J. M. GORDON & CO.:

Dear Sirs,—It affords us great pleasure in testifying to the superiority of the Glycerin Fluid purchased from you for filling the Wet Meters now in use by the Covington Gas-Light Company.

The difficulty of finding a non-evaporating and anti-freezing mixture for Wet Meters, has, in my opinion, been overcome by the use of your Glycerin Fluid.

I have had it in constant use for the past four months, and during that period the thermometer has ranged as low as 14o below zero, and after careful examination, I have found the fluid in the same condition as when first put in the Meters, and without the slightest discoloration.

Its non-evaporating quality does away with the hitherto unavoidable expense of filling the Meters monthly, and renders Wet Meters no longer objectionable.

In fact, I can cheerfully recommend it as being cheaper and better than any other Fluid or Mixture now in use.

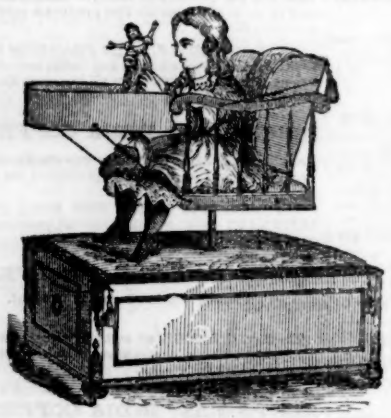
Very respectfully,
S. S. STRATTON, *Sup't Cov. Gas Co.*

We have been engaged in Manufacturing Glycerin the past six years, and from our advantage in material and the large amount we make, are enabled to offer it lower than any manufacturer in this country. We will be pleased to quote prices or to give further information.

W. J. M. GORDON & BRO.,
MANUFACTURING
CHEMISTS & DRUGGISTS,
N. E. Cor. Central Avenue & Eighth St.,
Laboratory, Miami Canal, bet. Third & Fifth Sts.,
CINCINNATI, O.

BROWN'S

PATENT BABY TENDER.



THE BABY-TENDER.

Is the most complete and useful Nusery Invention of the age. From a charming Spring Cradle, it is easily and almost instantly converted into either of the following articles namely:

A Reclining Couch, for children to young to sit alone.
A Spring Chair.
A Baby Walker, attractive and useful.
An Ottoman, for the parlor or dining room.
A Hobby-Horse, for children under five years.
A Baby-Jumper, for security, exercise and amusement. (See cut)
A Baby-Horse, or, when elevated,
A High Chair, for the table.
A Nursery Chair.

The motion of the Baby-Tender, which is vertical and noiseless, is derived from a Spical Spring in the Ottoman; and, unlike that of the common Rocking or Swinging Cradle, is in the highest degree healthy, delightful and soothing. It relieves the mother from the hardest part of baby-tending.

Prices from $25 to $50.

AGENTS WANTED.

Terms cash.

When packed the Baby Tender alone measures seven cubic feet, and weighs about one hundred pounds. The horse adds about one-fourth to the weight and measurement.

☞Send for Descriptive Catalogues.

BABY-TENDER MANUFACTURING COMPANY.
939 Broadway, N. Y.

New York, April 18th, 1864.

* * * * * *

We respectfully invite your attention to and consideration of the justly celebrated and reliable remedy for DYSPEPSIA, HEARTBURN, DEBILITY and PROSTRATION. The Proprietors are proud to acknowledge the unparalleled success which has attended the sale of their valuable preparation, known in nearly every portion of the civilized world as the

"GOLDEN BITTERS."

We risk nothing when we term them a *valuable preparation*, for they are one of the few articles of the present day which are not a humbug; and we are willing and able to satisfy any person or persons who will call upon us, that the celebrated "GOLDEN BITTERS" are a genuine *bona-fide hygienic* article. It is the wish of the proprietors that the virtue of the article be tested before condemning. A decision of their merits by any one who has tried them, is worth a million of purchased bogus testimonials.

For Creating a Healthy Appetite

they are invaluable, and are unequalled as a TONIC. They are mild in their action, and operate by giving *vigor* and *strength* to the system,—not by any change they produce in the solids, but through the medium of the living principle.

They are Purely Vegetable,

being composed of Gentian Root, Calamus, Sassafras, and many other remedial agents of the Vegetable world, all preserved in Jamaica Rum and Sherry Wine.

As a Beverage

They are the most *wholesome, invigorating* and *palatable* stimulant ever offered to the public. And the fact of their being prepared chemically and scientifically, precludes the possibility of a bitter, unpleasant taste, common to Bitters generally offered for sale. We especially recommend them to LADIES, and particularly to those suffering from

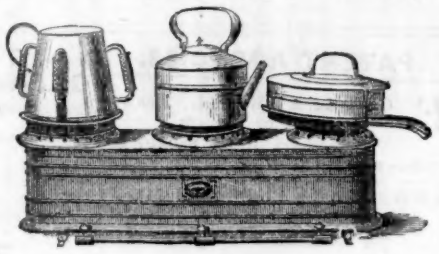
DEBILITY, WEAKNESS, AND PROSTRATION.

Half a wine glass of these "Bitters" three or four times a day, will produce a remarkable healthy change in persons greatly debilitated.

The "Golden Bitters" have been tried and not found wanting. They are put up in our own *Patent* quart bottles, and for sale by Druggists, Grocers, &c., throughout the world. Each bottle bears a fac-simile of the signature of Hubbel & Co.

GEO. C. HUBBEL & Co, Sole Proprietors.
CENTRAL DEPOT, American Exp. Building, New York.

THE GOLDEN BITTERS.—We are not an advocate of stimulants of an alcoholic character; indeed we deprecate this "daily tonic" idea—this "morning toddy" which we see offered in all sorts of shapes as a recuperator, invigorator, revitalizer, &c. As a rule all artificial stimulants are dangerous remedies, and must be taken into the system as you would mercury or arsenic, in very small doses. But we have had an opportunity to try the now well-advertised article known as Hubbel's Golden Bitterz, and are frank to say that where the system needs building up, where a stimulant is required to aid nature in restoring a lost appetite and infusing a vigorous action to the debilitated functions, we can recommend these Bitters. Hubbel's Golden Bitters are evidently intended to improve the debilitated human system, rather than to tickle the palate, and are, therefore a harmless and safe remedy to keep in the house.—*New York Weekly Day Book.*



Cooking & Heating
BY GAS.

CHEAPER THAN COAL OR WOOD.

The "EAGLE" Gas Heating
STOVES,

Positively guaranteed free from Smoke or Smell.

Will Heat Offices, Parlors, Dining, Sleeping, and Bat Rooms. Also,

The EAGLE Gas Cooking
STOVES & RANGES,

Will BOIL, BROIL, ROAST, BAKE, TOAST,

STEW, and HEAT IRONS

The EAGLE GAS STOVES and RANGES have been in use for over Three years, and are found to be the most SIMPLE, COMPLETE and PERFECT Arrangment for HEATING and COOKING, in every respect ever invented, and to do the Work with LESS TROUBLE, in LESS TIME and at LESS EXPENSE than any Coal or Wood stove.

Their WONDERFUL NEATNESS, CONVENIENCE and ECONOMY can be seen at a glance.

WE ALSO MANUFACTURE

COAL OIL STOVES,
For Cooking and Heating.

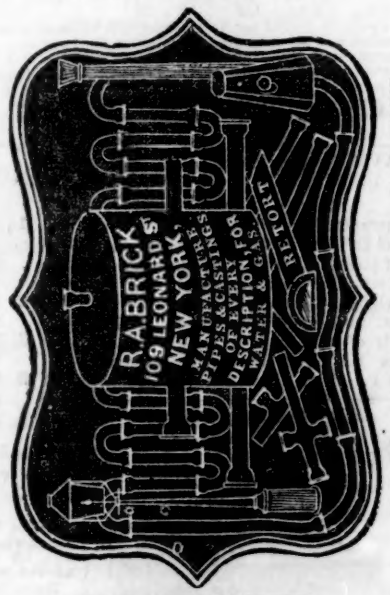
The American Advertising agency 389 Broadway, N. Y. Bus. Dept., E. Alvord, cor. Dept., Fowler & Wells, receive orders for our stoves.

EAGLE GAS STOVE MANUFACTURING CO.
No. 474 BROADWAY, N. Y.

☞The Company have descriptive Catalogues, which will be sent or delivered, upon application for them.

DRIVING PIPE,

BERGEN IRON WORKS,



OFFICE 109 LEONARD STREET, NEW YORK.

AND BANDS COMPLETE.